Liability of ITS services for connected cars from the perspective of a service provider

Dr. Johannes Springer, Head of Technology and Business Development Strategic Business Area Connected Car, Deutsche Telekom/T-Systems
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Agenda.

1. Connected Car –
   ▪ Market Overview & Positioning of Deutsche Telekom.
   ▪ Profile Strategic Area Connected Car.

2. Technology and Services –
   ▪ Building blocks and architecture of telematics platforms.
   ▪ Connected Car Services

3. Liability –
   ▪ How to ensure service quality.
   ▪ Design principles: „State of the Art“.
   ▪ Process Guidelines
Connected car – what’s happening in the market?

We connect the vehicle with its environment and the driver with his private and professional contacts, emails and data.

**Society**
- Market penetration of mobile Internet > 25% in 2012
- Vehicle is the last „white spot“
- Need for driver-specific service and operating concept

**Car Manufacturer**
- Smartphones threaten highly profitable navigation business
- Differentiation via brand-specific online services
- Customer retention and loyalty

**Regulation / Legislation**
- E-Call 2015: Embedded SIM compulsory in every car
- 1 Mio E-Vehicles in 2020
- CO2 fleets targets per OEM*

**Macro Trends**
- Need to optimize utilization
- Reduction of warehousing
- Increase in production down-time due to more traffic jams

**Logistics/Fleets**
- Market penetration of mobile Internet > 25% in 2012
- Vehicle is the last „white spot“
- Need for driver-specific service and operating concept

*Original equipment manufacturer*
Deutsche Telekom’s Strategic Area Connected Car addresses the automotive industries’ challenges for online services.

**Challenge**

**Automotive Industry**
- Need to manage customers and online services
- Verticalize project services with car enabling and service provisioning

**Business Customers**
- Need to integrate backend services into cars & trucks
- Utilize enabling services at fleets and logistics with cloud based telematic solutions

**Consumers**
- Need to integrate smartphone into car
- Generate best synchronisation services consisting of docking, driver interface & car services

**Government / Regulation**
- Need to optimize mobility
- Provide vehicles with easy, cost-effective and secure infrastructures based upon licenses

**Long-term strategic investment of Deutsche Telekom**
References Deutsche Telekom / T-Systems.
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Major building blocks needed for a telematics platform
Operating a platform using existing standards and technologies.

- Client
  - Standard Architectures, e.g. GENiVi, OSGi, ...
  - Embedded
    - Standard Architectures, e.g. GENiVi, OSGi, ...
  - Smartphone
    - Existing Platforms
      - e.g. iOS, Android, Windows, ...

- Backend Infrastructure
  - Operating Standards
    - e.g. OMA-DM
  - Security Standards
    - e.g. SSL, SAML
  - Application/Service Standards
    - e.g. eCall
  - Standard Architecture
    - OSS/BSS

- Protocol Standards
  - http/https
  - POP3
  - SMTP
  - SMS
  - ...
Examples for Connected Car Services. Liability Relevance and business impact.

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<td>Driver &amp; telco</td>
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Dr. Johannes Springer / Connected Car
Tactics to deal with liability issues

Contractual “Design”

Technical / Procedural Design
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### Major Liability problems

#### Functional / Quality
- Functional malfunctions
- Quality problems: values, ranges, thresholds, heart-beats, on/off-distinction, etc.

#### Availability
- Service availability by Time (7/24)
- Service availability by Location

#### Performance
- Performance problems: Time lags / process speed, overload, etc.
Reference Model for Connected Car.
Design principle „measuring / logging“ to handle liability issues.
Reference Model for Connected Car.
Design principle „monitoring/reporting“ to handle liability issues.
Reference Model for Connected Car.
Design principles „sender/receiver receipt“ to handle liability issues.
Example: Remote Door Lock/Unlock.

**Diagram: Remote Door Lock/Unlock**

- **Local/Client**
  - Monitoring/reporting
  - Device
  - Monitoring/reporting
  - Sensor
  - Heartbeat
  - Door open/closed

- **Central/Cloud**
  - Monitoring/reporting
  - Device
  - Monitoring/reporting
  - Service
  - Sender/receiver receipt
  - Service/service

- **Services**
  - Middleware (Platform)
  - Functional logging
  - Door open/closed

- **Network**
  - IT-/TC-Operation

**T-Systems**
Testing and Operational Infrastructures
Staging Concept as a Process Framework

1. Step
- Integration
  - Client Services
  - Central Services

2. Step
- Tests
  - Functional
  - Operational/ (Load/ B’Up/Recovery)

3. Step
- Deployment into Production
Summary: Enabling service providers to drive innovation and to accomplish with liability requirements with a portfolio of:

- Flexible and secure hosting environment
- Fast and reliable operation processes based on standards
- IaaS, SaaS or PaaS housing models
- Monitoring and Reporting Processes
- Deployment and Review processes: Staging

Architecture
- Modular and service-oriented
- Horizontal scalability
- Security & Data privacy
- Transparency and Traceability between Service processes
- Use of COTS and Open Source Software
- Cutting-Edge technologies, e.g. NoSQL
- Future proven

Platform Services
- Device Gateway
- Service Integration
- Portal Framework
- OSS and BSS
- Trust Center (PKI)
- Identity Management
- B2B Interface Integration
- Networking Services
- Monitoring and Reporting Services
Thank you for your attention!