Web and Automotive
W3C Workshop

SUMMARY

01 Car displays are special

02 Technical Challenges

03 Web technologies and standards can help

DRIVE THE CHANGE

01

Car displays are special

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Cars are specifics

A TV set is an HMI designed to

- Watch Broadcast Progra...
- Web TV
- ...
- ...

But you CAN still use it as a TV

A Smartphone is an HMI designed to

- Place and answer...
- Wa...
- ...to web
- Control your TV

...

But you CAN still use it as a Phone

A Car Central Display is an HMI designed...

- Listen to the radio
- Be guided
- ...one call
- ...EB
- Control HVAC, ADAS
- ...

But you MUST still be able to drive your Car

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Safety first

- ## Yes !

    - ### But not specific to web usage in a car environment

    - ### Safety is already addressed by usual embedded HMI

- ## Driver distraction management

    1. ### Design rules (Human factors) for app developers.

        Should not distract, stress or require a driver action while driving

    2. ### Validation of the app before its deployment on the application store

        Systems engineering approaches.

    Until more dynamic, run-time solutions can be proven

02

Technical challenges

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Challenge - Performance

- **User acceptance level**
  - Design rules, Response time requirements
  - SW and HW optimizations

- **High level for UX**
  - Touch screen, Speech, …
  - Animation, effects
  - Level of integration (feature coexistence)

- **Native applications vs Web Apps**
  - HTML5 Native application possible ?
  - or Web Apps Only

Challenges - Functional API definition (1/2)

- **For both M2M and user-centric applications**

- **Harmonized with GENIVI**

- **API designed for:**
  - **Performance**
  - **Scalability and Evolutivity**

- **Handle Interaction with native applications**
  - e.g. Audio management

- **Take care of Security / Privacy issues**
  - e.g. dynamic access control policies

- **Always on-line**

  - **Need strategies to manage off-line mode**

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Challenges - Functional API definition (2/2)

User centric

- **Remain connected (Social network, …)**

- **Entertainment for all passengers (Audio, Video, …)**

- **Easier daily life (Calendar, Yellow pages, …)**

- **Help (BCall, HelpCall,..)**

Trip and car centric

- **Trip optimization (Traffic, Parking…)**

- **Multimodality**

- **Save money (Eco-driving, PAYD, …)**

- **Maintenance facilities (Manual, After-sales offers, …)**

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Challenges – Monetizing (1/2)
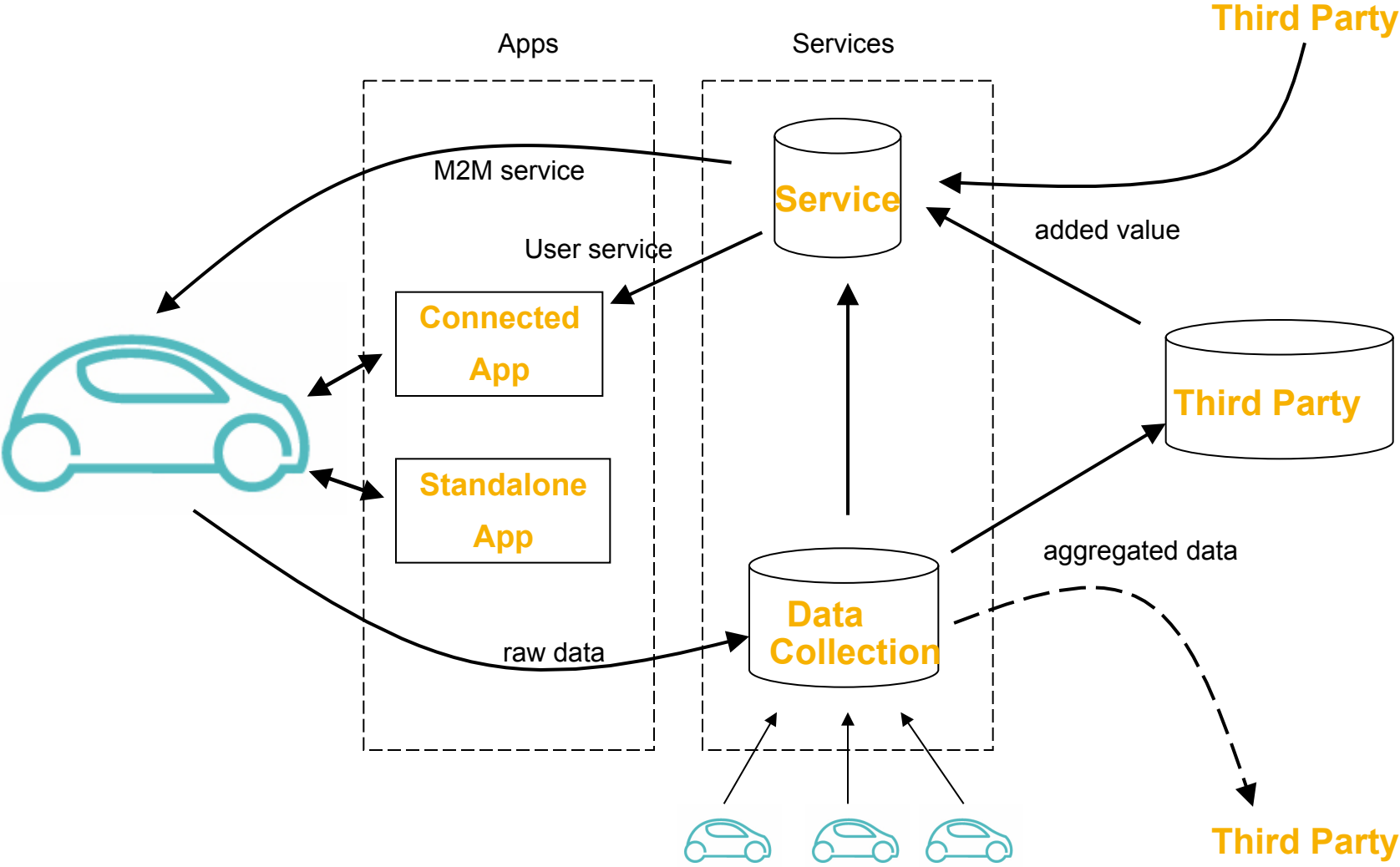
- **Monetizing in-vehicle services**

  Ability to build application stores

  Ability to monetize HTML5 based services

- **Monetizing collected vehicle data**

  Collection, Aggregation and Distribution

Challenges – Monetizing (2/2) ->   M2M and User centric

Apps

Services

Third Party

M2M service

User service

Service

added value

Connected App

Standalone App

Third Party

raw data

Data Collection

aggregated data

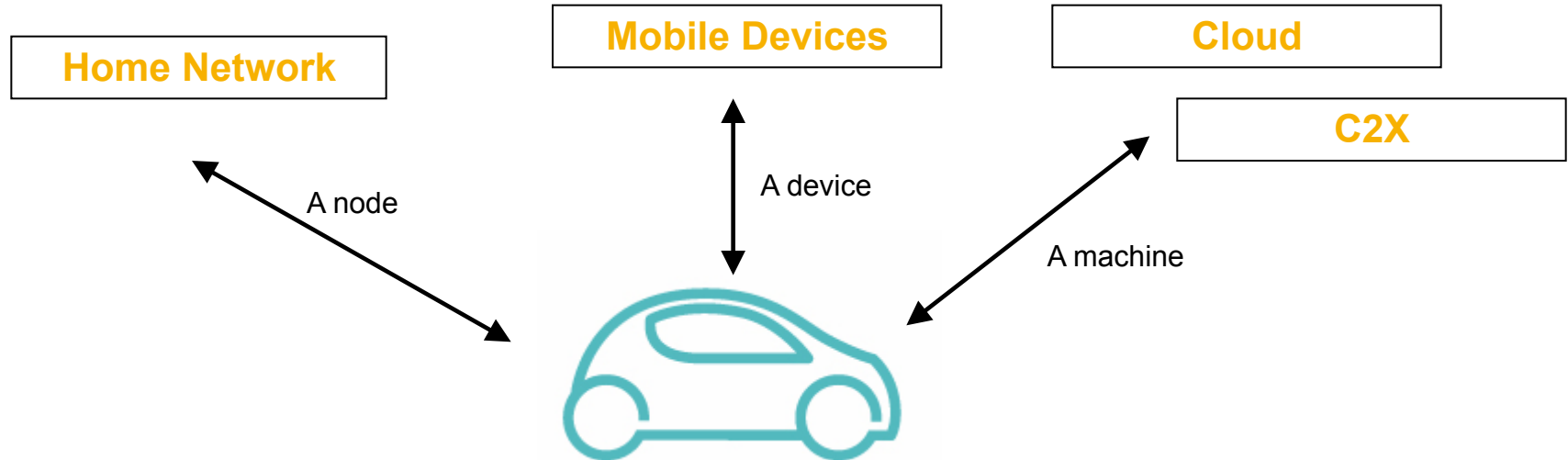Third Party

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Challenges – Compatibility and Interoperability with customer devices

- **End-user expectation**

  Find in cars what they got with smartphones.

  Compatibility between devices and car (Service continuity, Data synchronisation, …)

- **A car could be considered alternatively as :**

Home Network

Mobile Devices

Cloud

C2X

A node

A device

A machine

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03

Web technologies and standards can help

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Improving quality and reducing costs through Web technologies:

Standards and common approaches insure :

- **Better quality for the end-user**

  - Mobile interoperability

  - Security

- **Improved platform neutrality**

  - OS, HW independent

- **Improved code reuse**

  - Application re-use and Porting to new systems

- **Reduced development and deployment costs for carmakers and other actors of the value chain.**

  - Known technologies

END
THANKS