

Considerations for developing managed apps & how to apply the considerations to SDK

Oct. 11, 2017 | SDK Development Team

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OBIGO Inc.

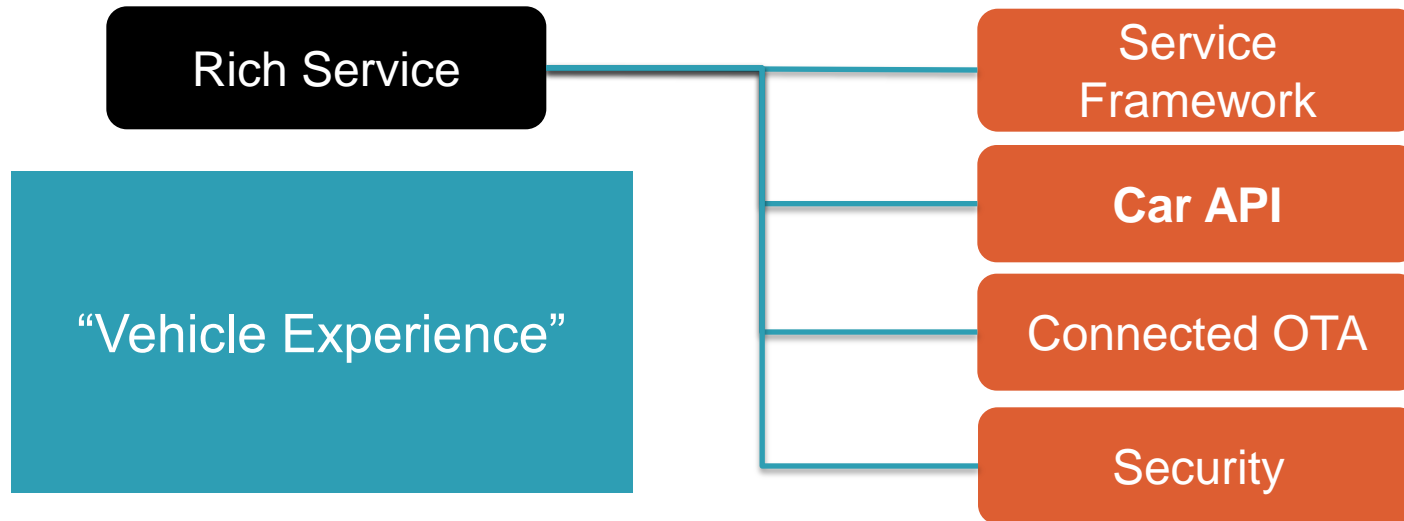
Agenda

- Trends and Background
- Lessons from Experience
- How It Works (incl Screen Shot)
- Video Demo
- Future Works & Summary

Trend & Background

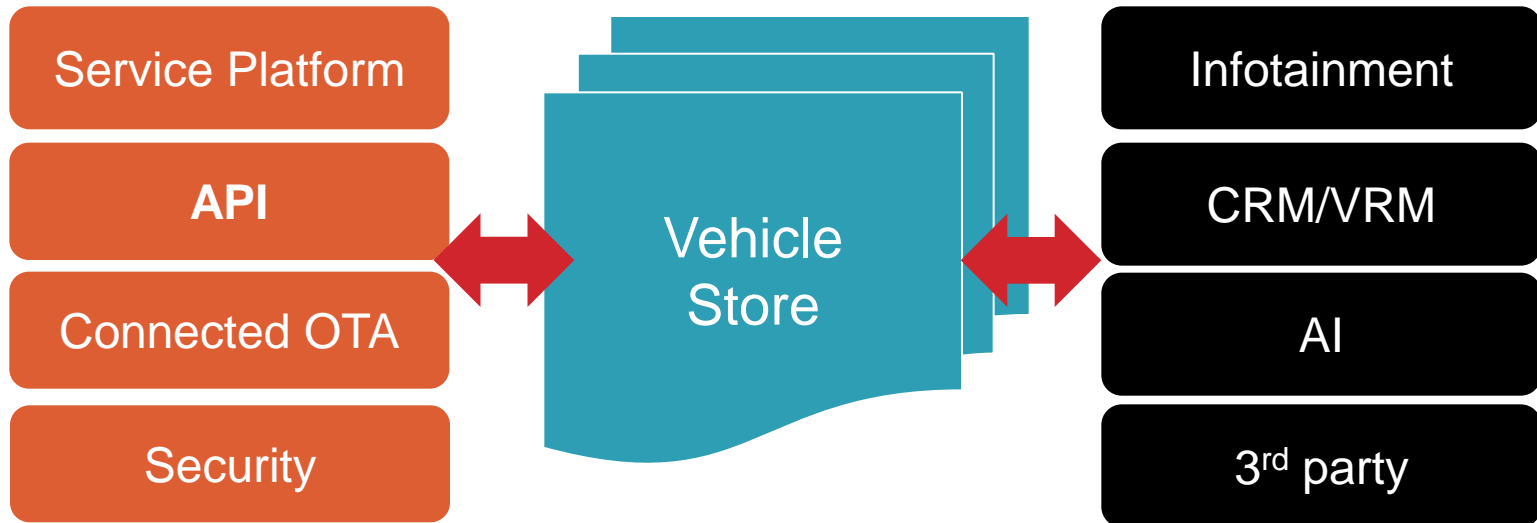
Market Trends

- Toward Vehicle Experience beyond mobile experience



Market Trends

- Toward Rich Service



SDK for in Vehicle Service
Based on Open Standard (HTML5)

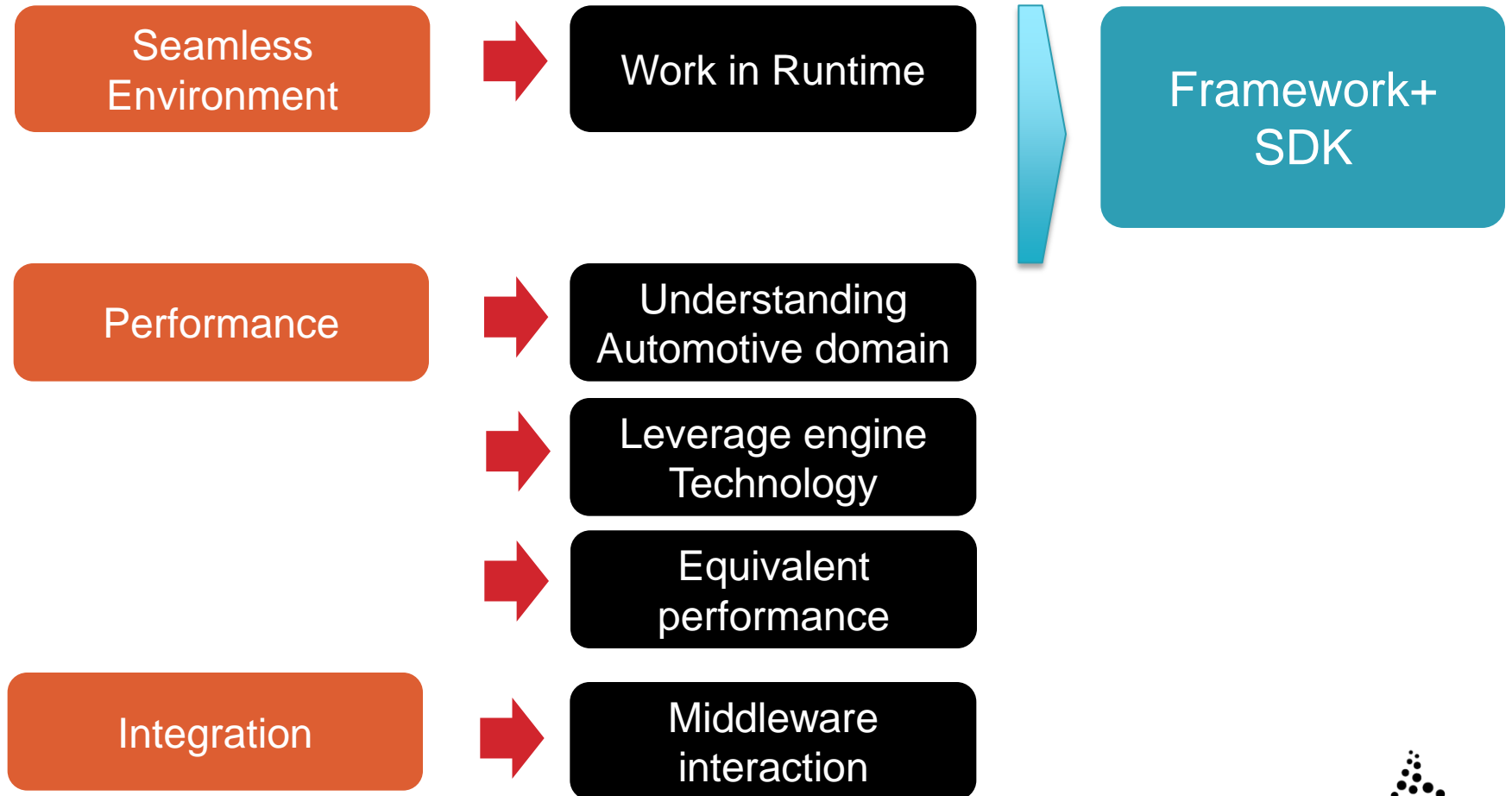
Market Trends

- Service Application Required



Market Trends

- Eco System is the Key to the Problems



Lessons from Experience

Lessons - Project Analysis

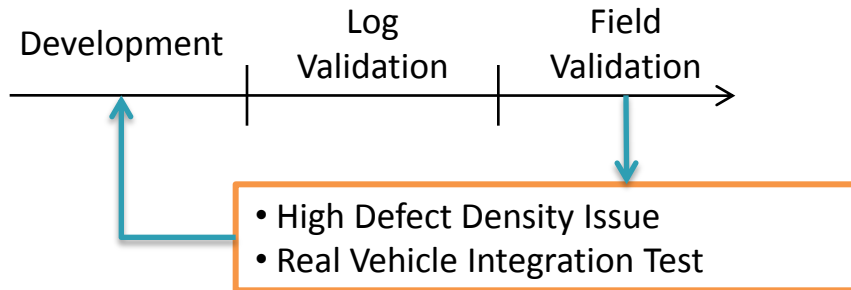
- Postmortem
 - Commercial Project Analysis for SDK
- Focus on Development Environment & Process
 - Defect Triage : Types, Category, Density,
 - Validation Process : Reason Why, Improvement, ...

Lesson Learnt (1/2)

- Defect & Validation Analysis

- Find Issue Earlier at Development Phase as Seamless [IDE]

- Critical Issues emerge at SOP (In Vehicle Test) [Vehicle Simul.]



- Resource Congestion(Peak, Duration) [CPU/TREND]

- Memory and CPU

- Visual Inspection [Different Types of Envi.]

- Brightness, Contrast, Theme, Ambient API, HMI Tool

Lesson Learnt (2/2)

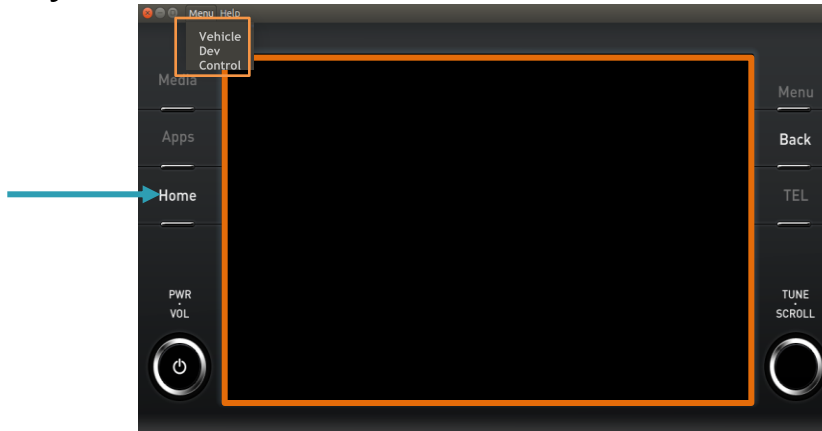
- Defect & Validation Analysis
 - Network Strength [NW TEST]
 - Strong/Weak/Offline/Poor(Intermittent)
 - Rarely Reproducible Issue [Macro Test]
 - Recovery when malfunctioned or Crashed [OOM]
 - Various Input or Interrupt [Bezel | Rear View Camera]
 - Different Vehicles Environment

How It Works - ScreenShot or Demo (SDK Features)

Simulator Overview

- Bezel Keys

- Menu
- Media
- Apps
- Back
- Tel
- Home

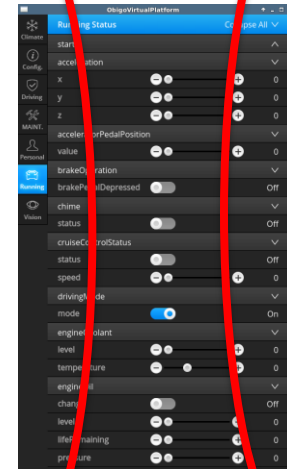


- Input

- Knob
- Wheel switch



- Vehicle simulation

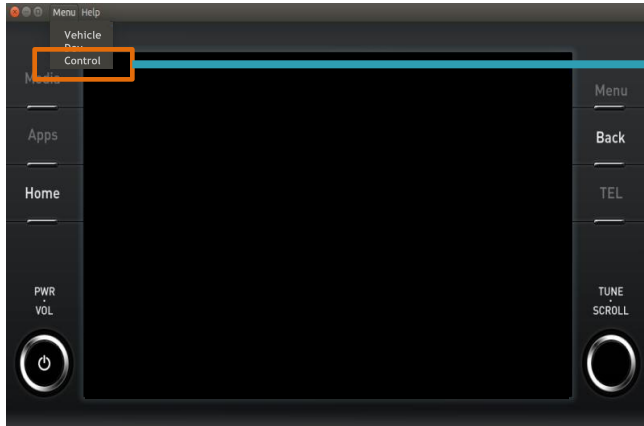


- Developer mode

- Launcher
- Dev
- Usage



Simulator Vehicle Control



- **Knob**

- Climate Control
- Configuration and Identification
- Driving Safety
- Maintenance
- Personalization
- Running status
- Vision and Parking



- **Wheel Switch**

- Volume up/down
- Page up/down
- Mode
- Call
- VR
- Next / Previous
- Back / Ok

Video Demo

Cockpit Vehicle API Simulation

- Running Status : Vehicle Speed > Gear mode
- Light Status : Head > Right Turn > Left Turn > Brake > Fog > Hazard > Park
- Engine Oil : Level (0 → 50)
- Fuel : Level (60 → 100)
- Parking Brake (Inactive → Active)

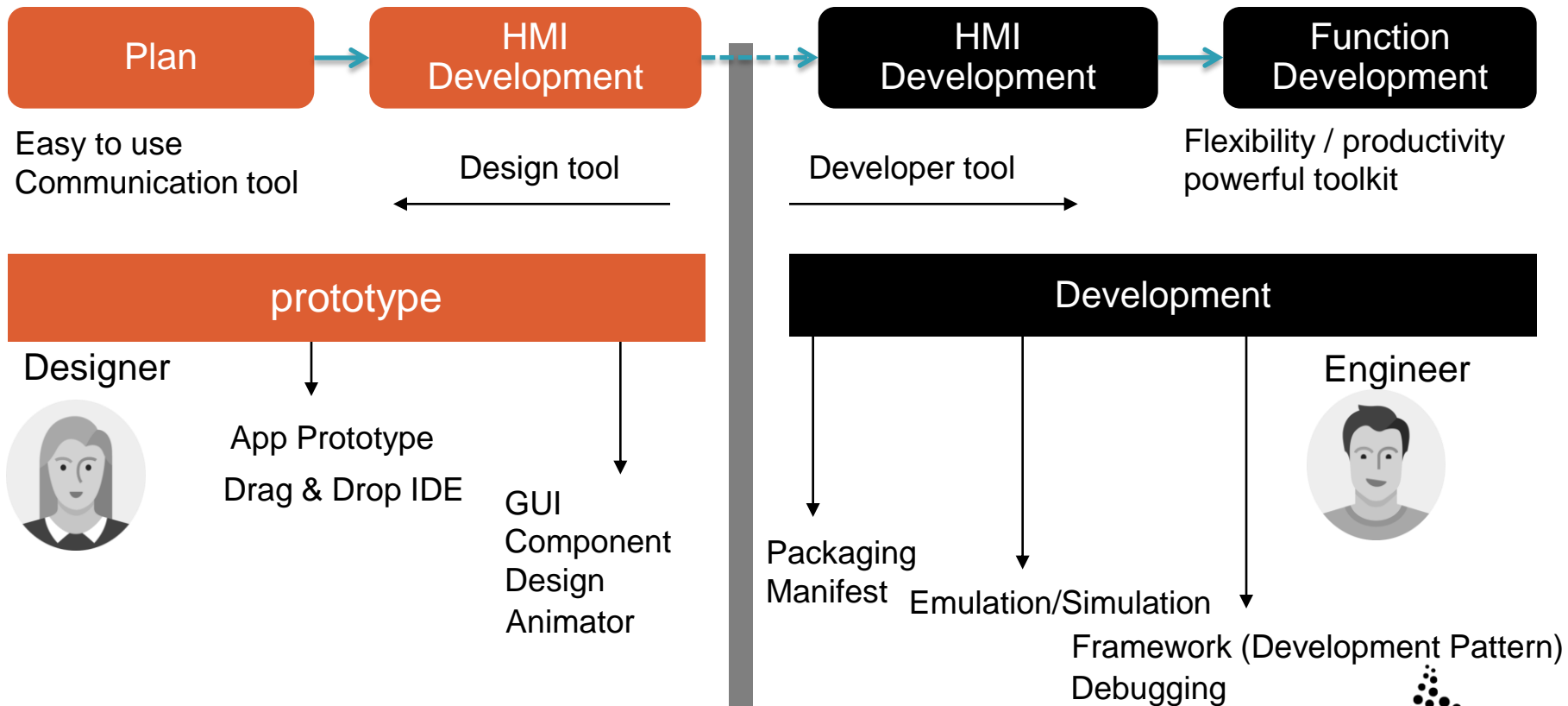


Network Signal – Weak and Intermittent

Future Works & Summary

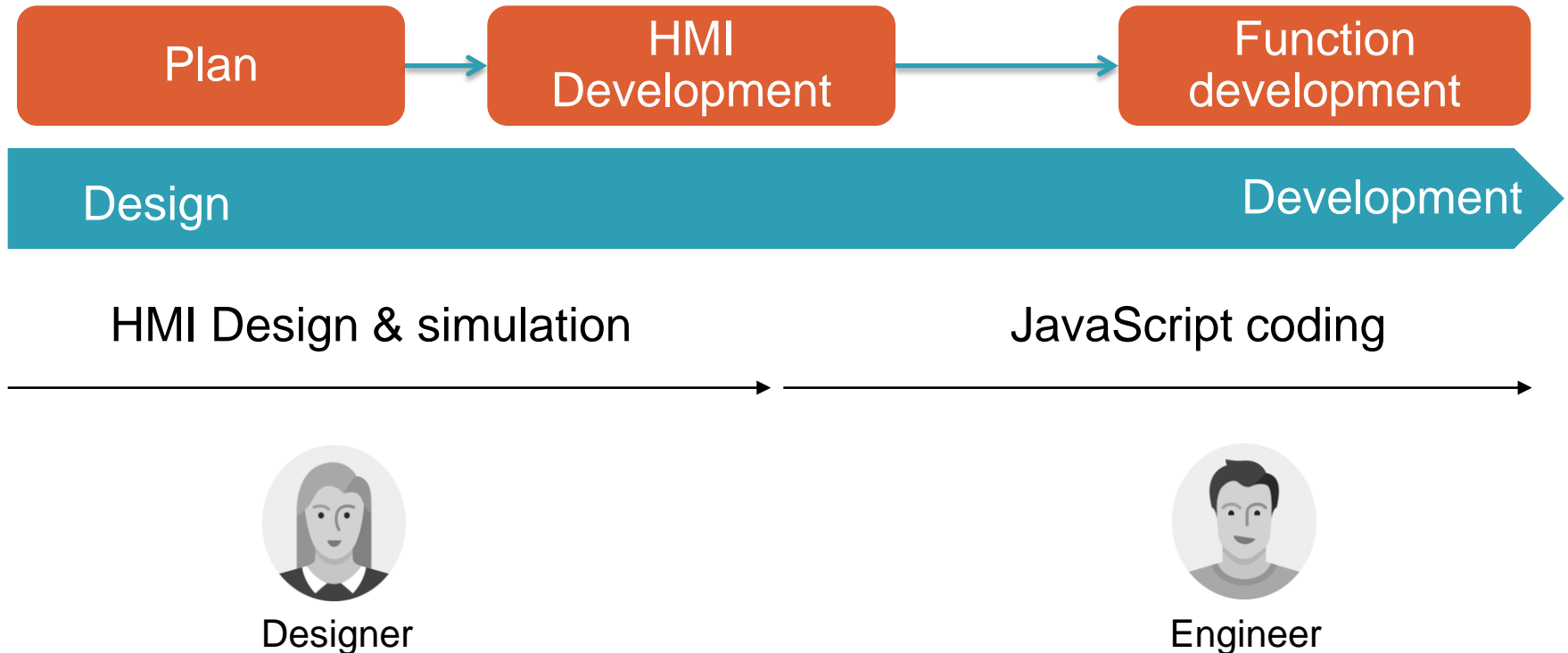
Future work

- Extension of SDK Coverage
 - Design tool
 - Development tool



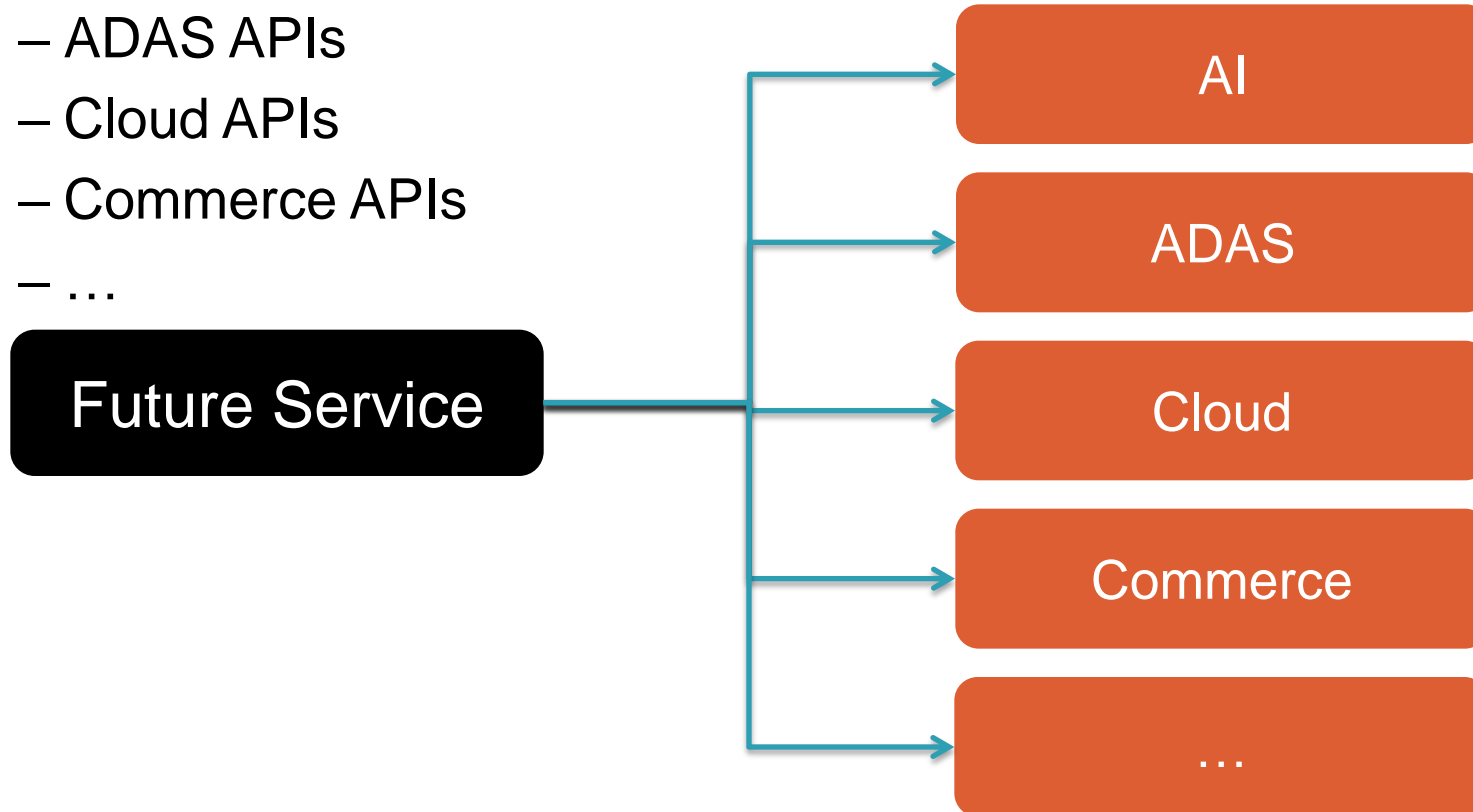
Future work

- Seamless developing process



Future work

- Rich Service
 - AI APIs
 - ADAS APIs
 - Cloud APIs
 - Commerce APIs
 - ...



Future work

- Application Quality Managing

Command Line Interface

Configuration management

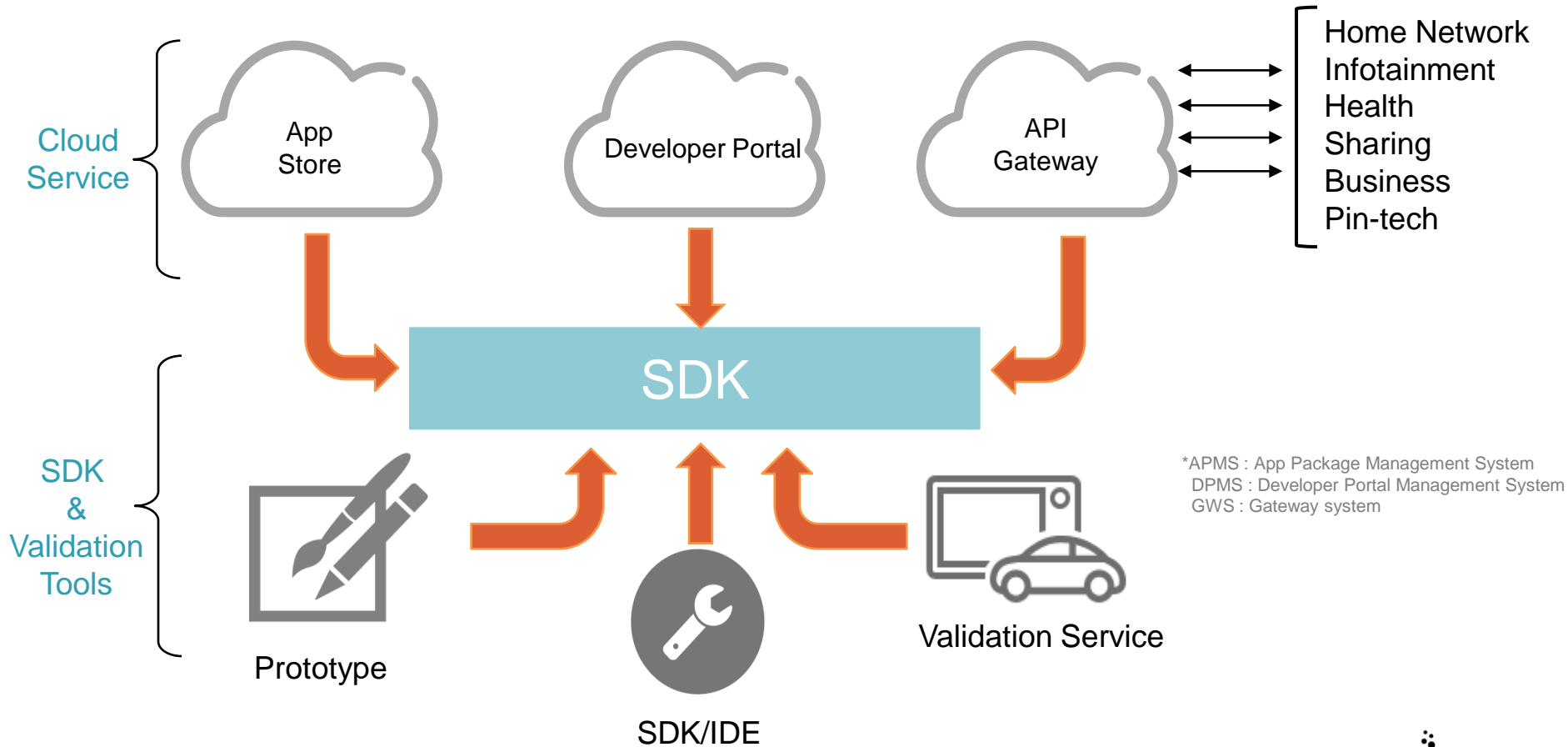
Test Framework

Code coverage

Continuous Integration
Application Quality Managing

Future work

- Seamless Development Environment



Summary

- Continue
 - Lessons from Experience and Analysis Upcoming Projects
 - Research with Collaboration via Standard Org (GENIVI, W3C)
- Expand Capability
 - Enhance In Vehicle Simulation and Emulation
 - Service API

Thank you!

This work was supported by **Institute for Information & communications Technology Promotion(IITP)** grant funded by the Korea government(MSIT) -R7117-16-0098 : *Development of HMI Framework and Application Development Tool based on Analysis of Fetched Vehicle Data*

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