KPIT

22nd October 2019

Evolution of Service Diagnostics

Agenda

- Traditional Service Diagnostics
- Todays Business challenges and need for Future Diagnostics Solutions
- Key Trends driving Service Diagnostics Roadmap
- Diagnostic Solution For Existing And Future Scenarios
- Automotive & Non - Automotive Service Diagnostics Use Cases
- Future Service Diagnostics Solutions

Traditional Service Diagnostics

Based On Our Customer Engagement

17 Years

- Leading Engine Manufacturer
- Geography: USA
- Industry: Auto

12 Years

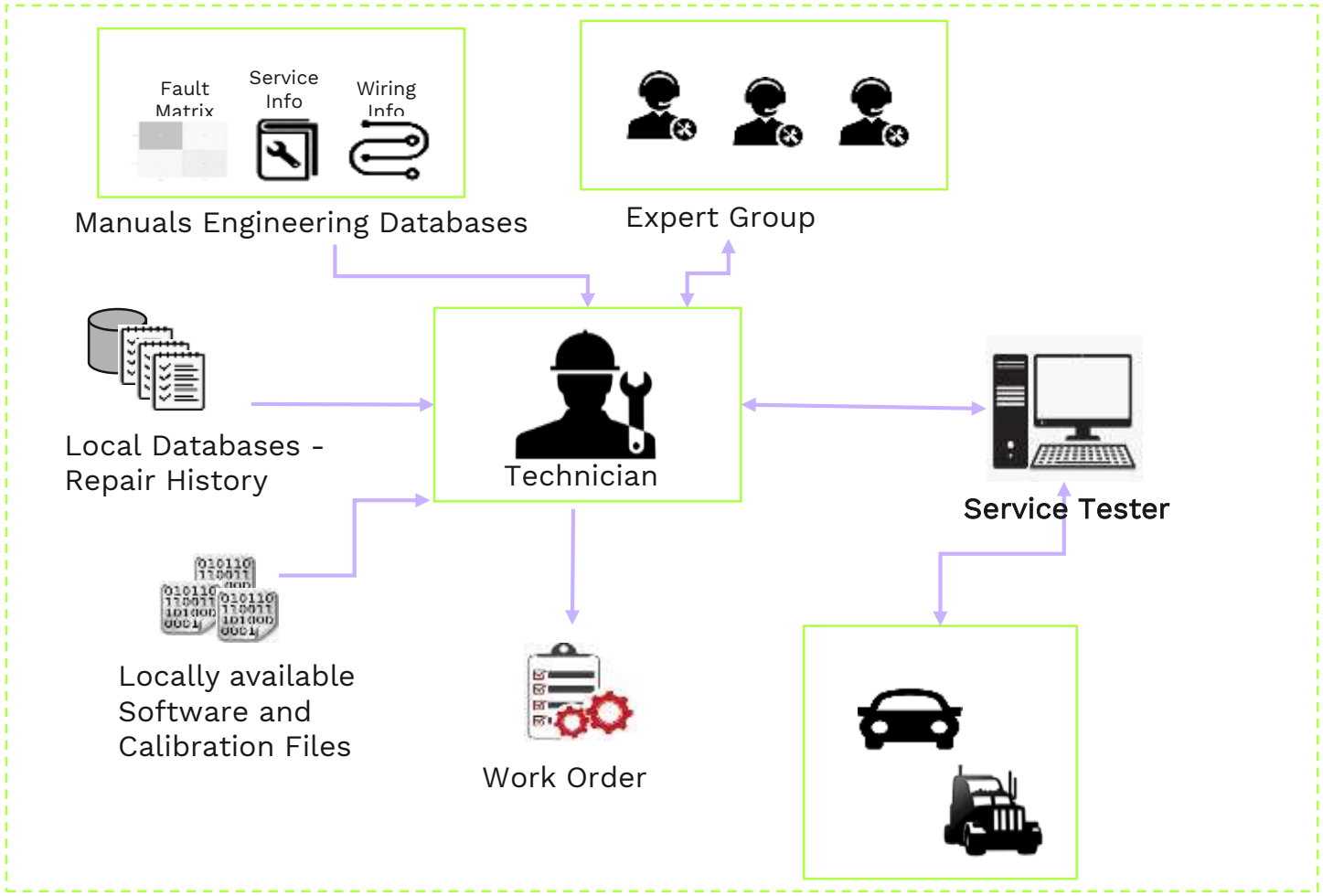
- Leading Specialists in Drive and Control Technologies
- Geography: Germany
- Industry: Auto (Hydraulic ECUs)

Back Days Expectation

Service Tester should support **proprietary protocols and data structure** which helps technician during fault Identification and repair action.

Features:

Traditional Service Diagnostic Eco System



Limitations

- Local Databases Uses
- Expert Dependency
- Single User System
- Legacy System Knowledge Required
- Different Tooling for Different System /Subsystem
- More time to repair

Increased Downtime and Higher Repair Cost

Business Challenges
Amplifying the Need for Future Diagnostics solutions

Advancing the **Prognostic capability** to **Accurately predict** the **time frame** for the **failure** of a component

Lack of **Trained** Technicians

Using the data from **diagnosis** as **100% accurate**
- a fault code does not necessarily mean this "IS" the fault

More **intelligent diagnostics** to **pinpoint** fault code **location**

Flashing over the internet
Over the air software

Lack of Tool **Standardization**

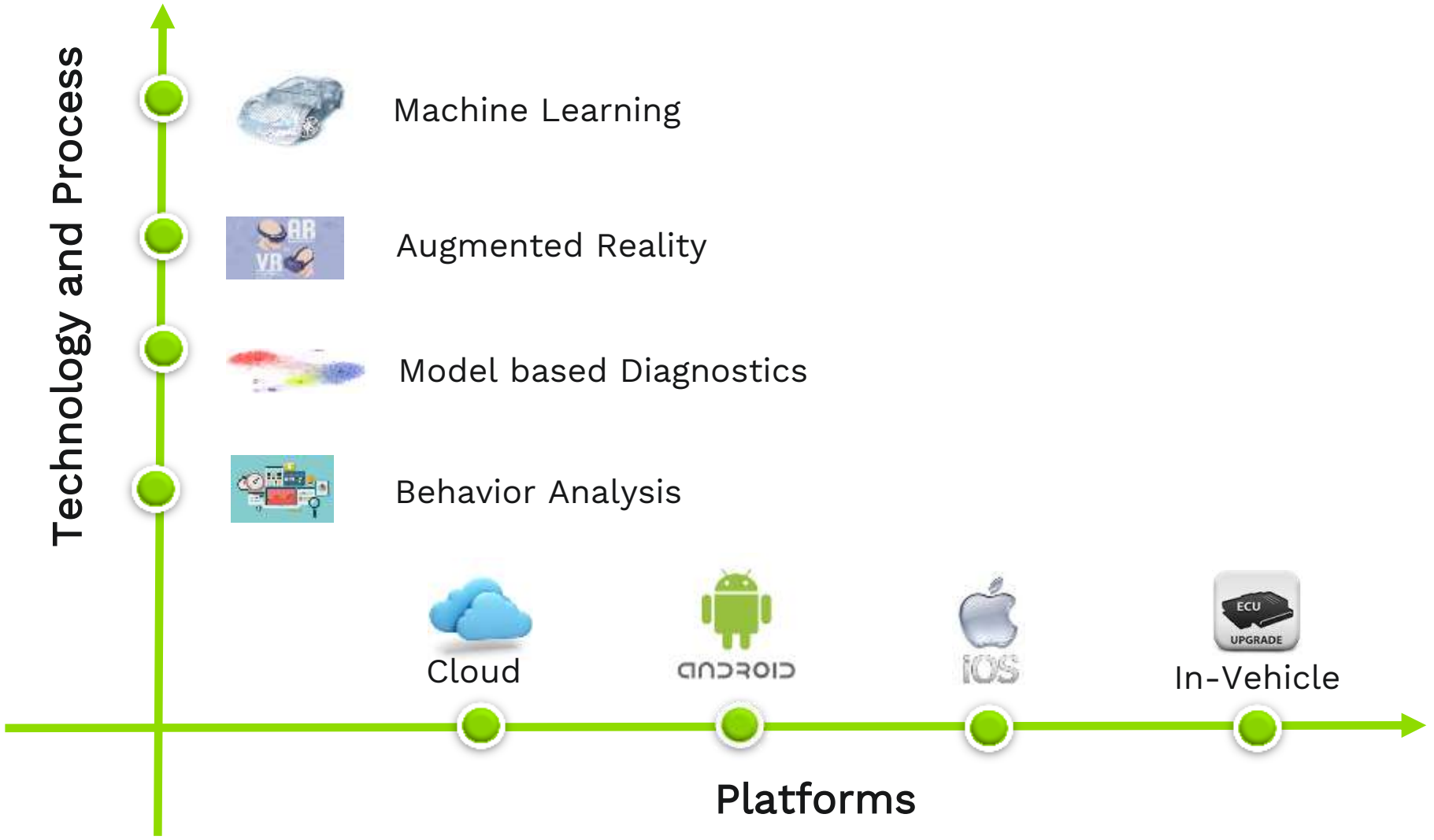
Remote diagnostics,
Remote **Monitoring**

Keeping up with the diagnostic demands of **new vehicles**

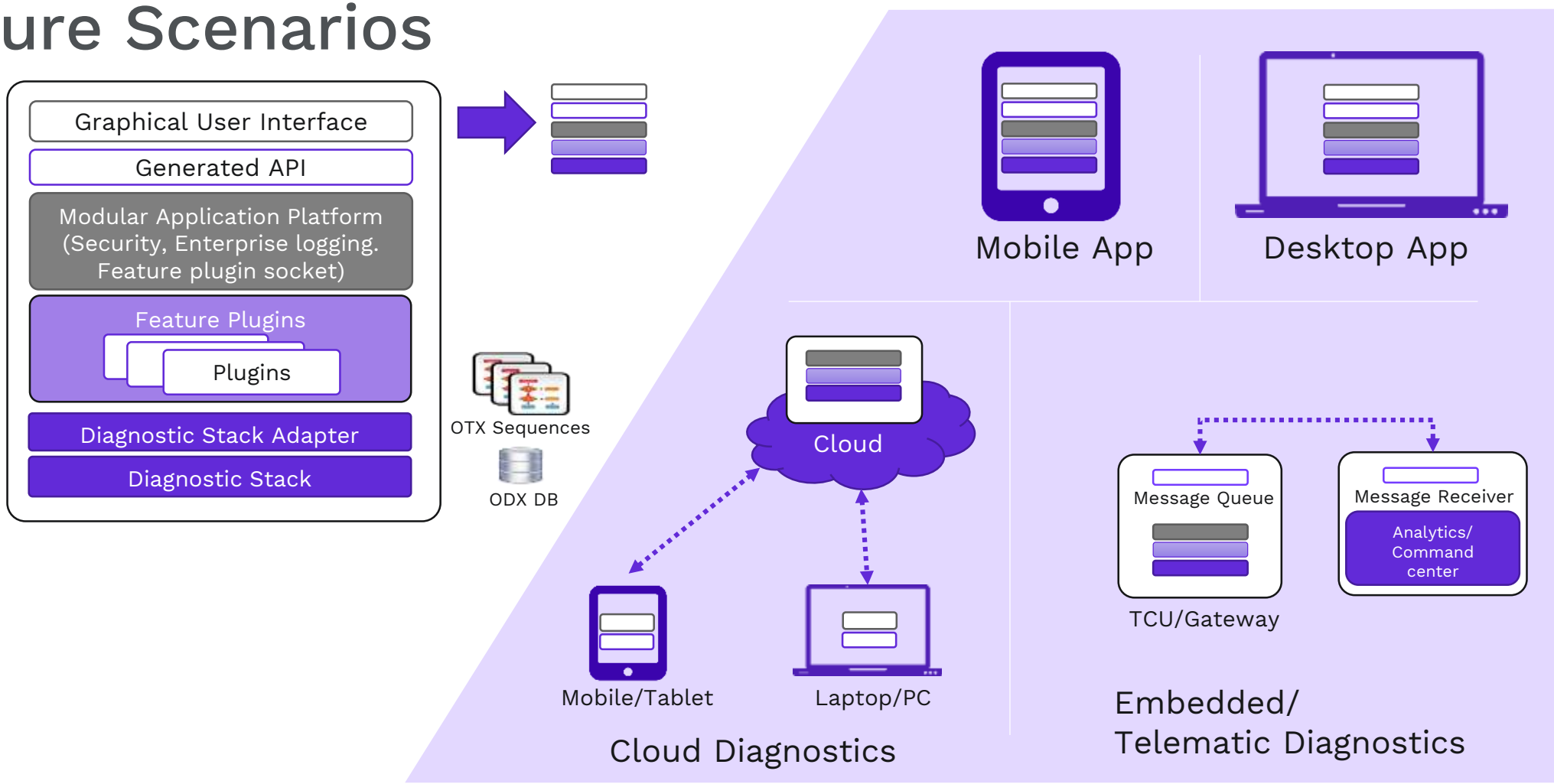
Key Trends which drives the Diagnostic Tool Roadmap

Mega Trends	Implications
• Guided Fault Finding • Remote Diagnostics • Embedded In-Vehicle Diagnostics & Over-The-Air Re-Programming • Prognostics / Autonomous diagnostics • Enterprise Integration • Usability Expectation	• Data-Driven tools and Processes • Use of latest Technologies in Diagnostic Solutions • Portable Diagnostic Tools • Efficient and Cost-Effective Diagnostic Solution

Platform And Technology



Need for Single Diagnostic Solution For Existing And Future Scenarios



Service Diagnostic Use Cases

Leading US based Engine Manufacturer

Mobile App for Aftersales Service

Key Business Objective
Ultimate Efficiency & Uptime through mobile technology

Solution Approach

- Single guided service solution
- Integrated workflow
- Wireless ECM connectivity for fault data retrieval & prioritization
- Data integration with business systems

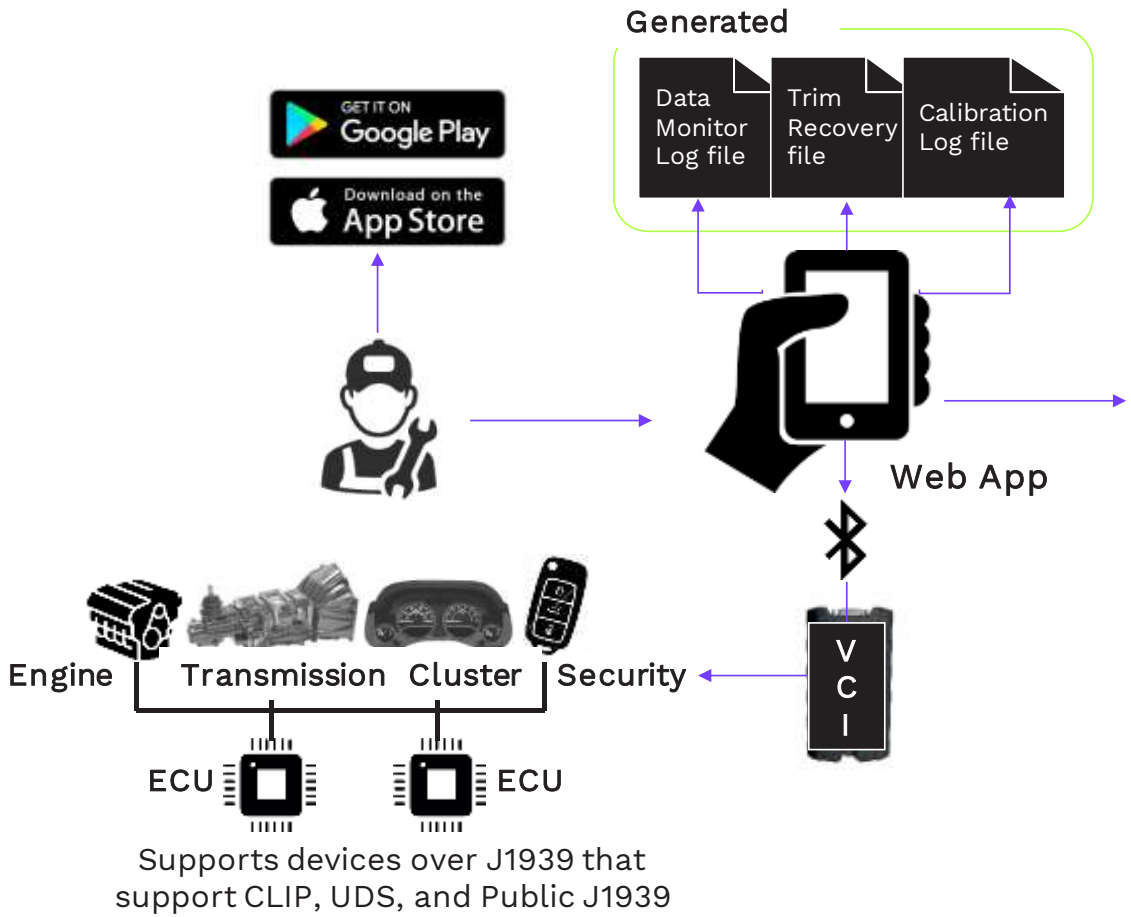
Solution Features

- Real time engine data
- Comprehensive service history
- Up-to-date status of the service event
- Repair time estimates
- Easy work order creation
- Guided warranty workflow

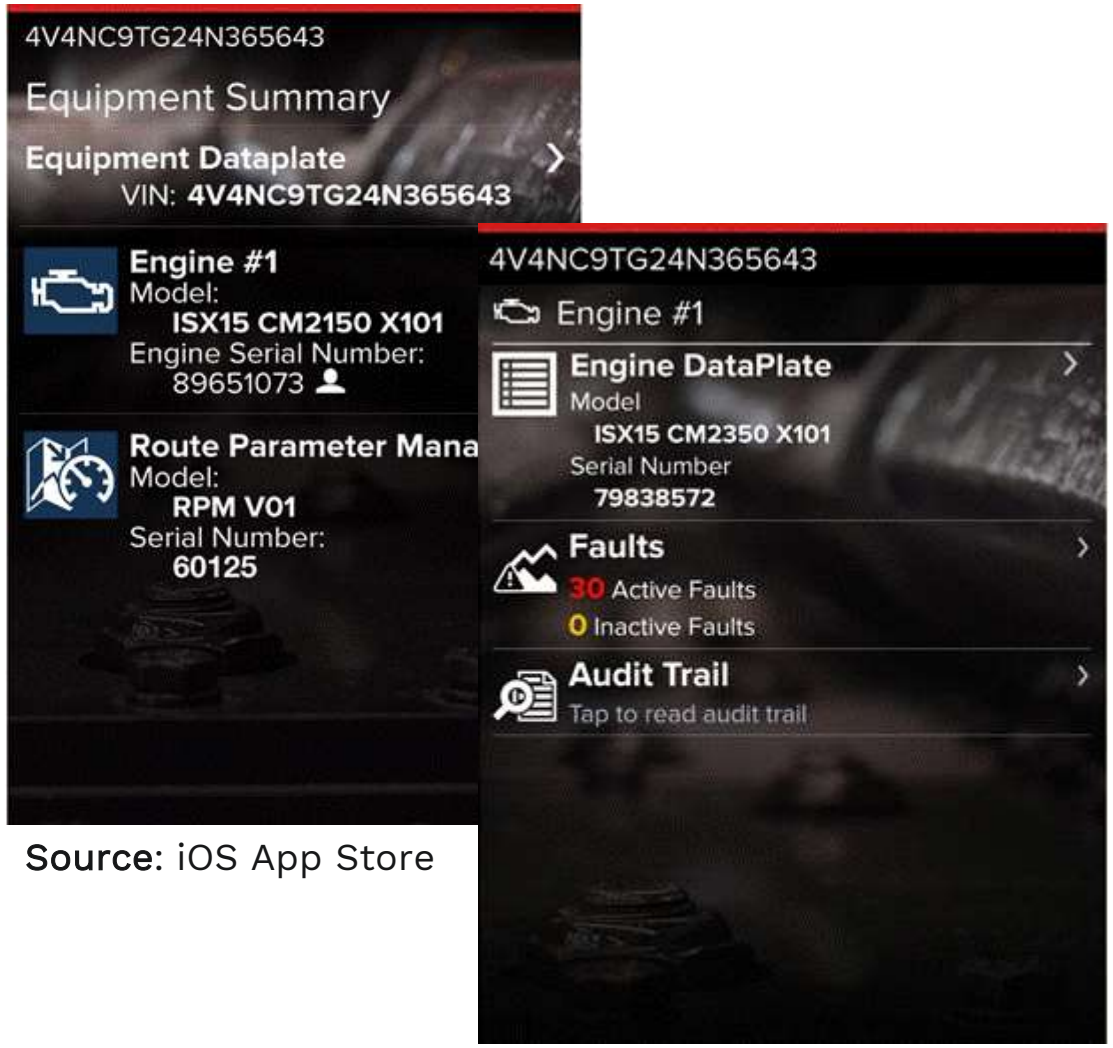
Value Add

Streamlined service & repair process	-> **Improved Uptime in remote locations**
Assessment within minutes	**-> Reduced triage time**
Integrated diagnostic & repair experience	**-> Improved technician performance**
Algorithm driven automation and data analytics	-> **Accelerated diagnostics & repair**

Mobile Diagnostic - Solution Overview



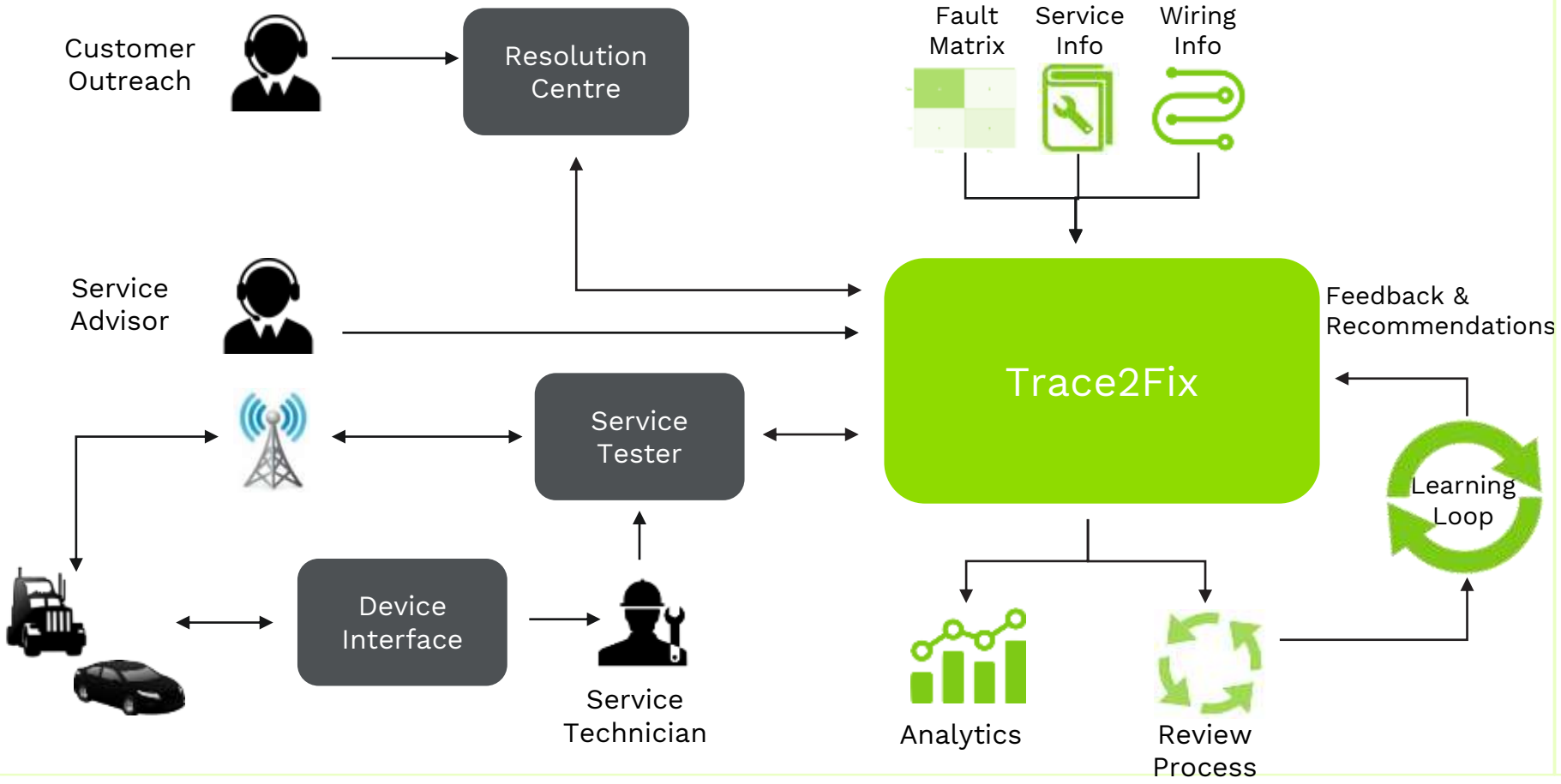
Supports devices over J1939 that support CLIP, UDS, and Public J1939



Source: iOS App Store

Network Based Guided Diagnostic – Trace2Fix Solution

Solution Overview

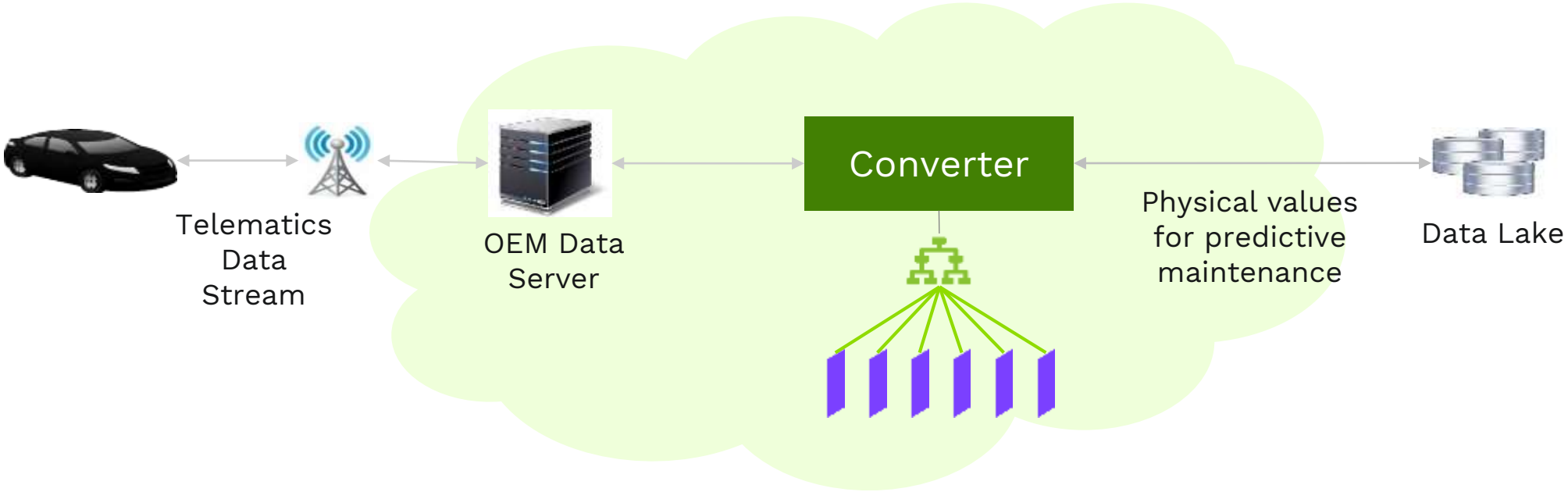


Solution Benefits

- *Fast and accurate diagnostics*
- *Quick time to market*
- *Product agnostic*
- *Automated model development*

Predictive maintenance using diagnostics over cloud

Key Business Objective
To achieve real time fault monitoring for predictive maintenance & vehicle health check



Implemented for **3 Vehicles**	Supports **30+ ECU**	**30K+** Transactions processed per day	**< 1 sec per** transaction

Future Service Diagnostic– Augmented Reality

Improving Technicians efficiency and effectiveness