The Fusion Project

Enabling Intelligent Connected Vehicles with a

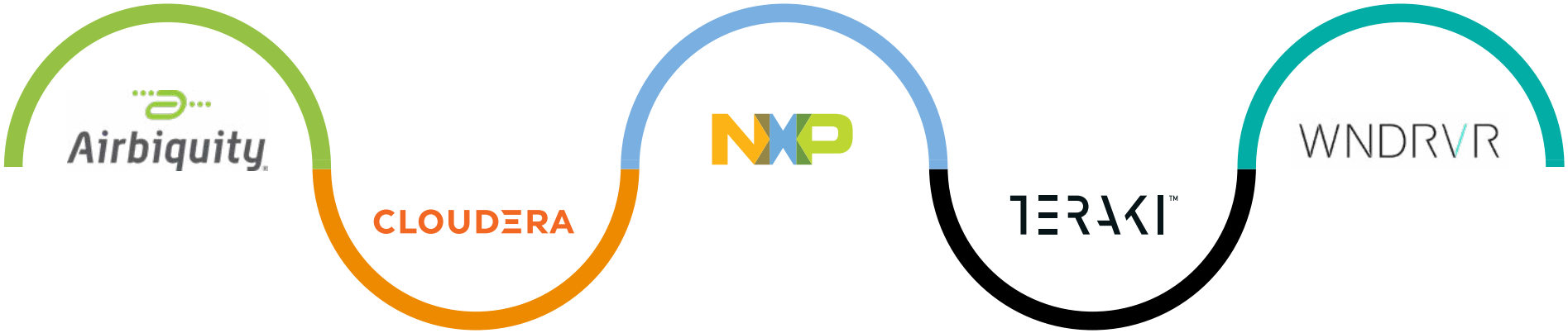
CONNECTED DATA LIFECYCLE

Airbiquity CLOUDERA NXP TERAKI WNDRVR

THE FUSION PROJECT

The Fusion Project Collaboration – Driving Success

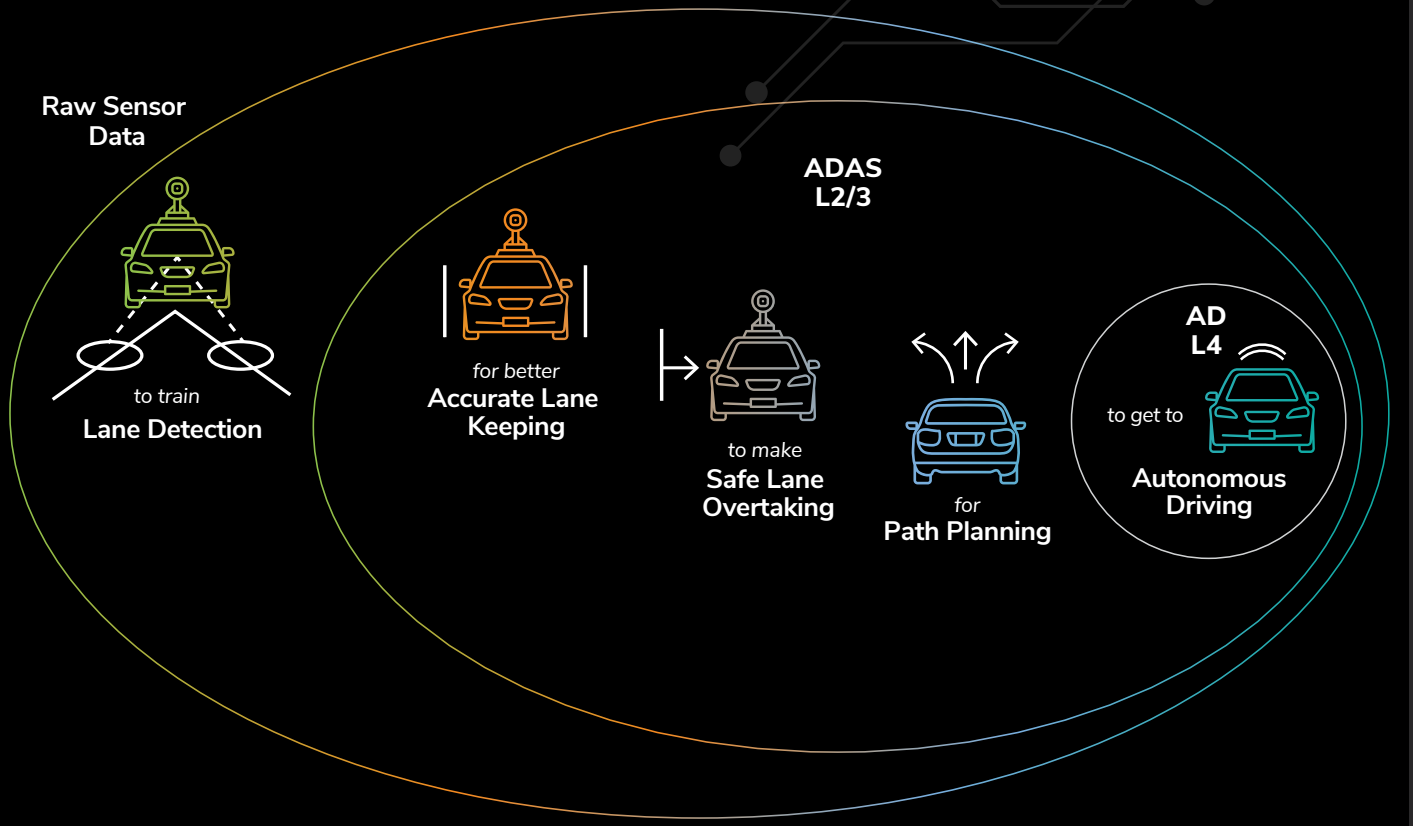
Airbiquity, Cloudera, NXP, Teraki, and Wind River have teamed up to provide an integrated solution from vehicle edge to cloud addressing the challenges associated with a fragmented machine learning data management lifecycle. The group has collaborated to define, implement and offer a data lifecycle platform enabling and optimizing future connected and autonomous vehicle systems. The state-of-the-art hardware, software, and cloud data platform used for data collection, analysis, and OTA updates showcases continuous training and improvement of advanced use cases and autonomous driving functions for production vehicles.



THE FUSION PROJECT | INITIAL USE CASE

Intelligent Vehicle Lane Change Detection

Intelligent vehicle lane change detection is the initial use case demonstrated with the solution because all aspects of the data lifecycle is leveraged and demonstrated. When examining the path to autonomous driving, lane detection is a necessary first step and is used to train lane keeping where lane accuracy must be <10cm. Lane keeping is then enhanced with additional training to perform safe lane overtaking, followed by path planning leading to the most mature use case – Autonomous Driving.



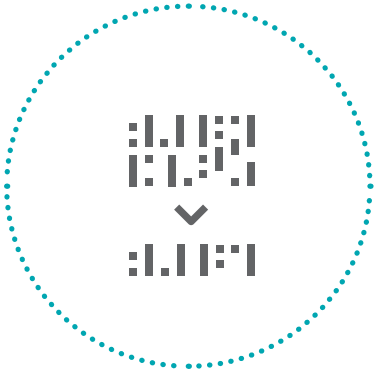
THE FUSION PROJECT | INITIAL USE CASE

Intelligent Vehicle Lane Change Detection (continued)

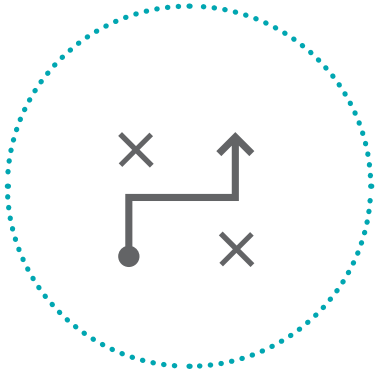
The Use Case Goal:

The use case goal is to significantly improve system decision and detection accuracy for machine learning models embedded in the vehicle while leveraging edge data analytics on low-powered, automotive grade hardware and dynamic machine learning model software updates via OTA.

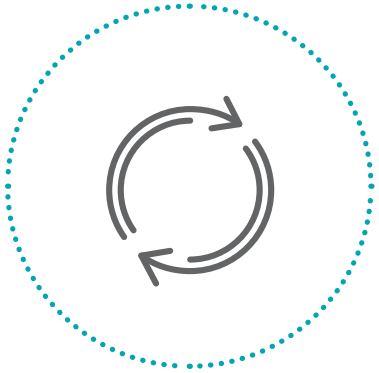
Attributes of the solution include:



Significantly lower data transmission and storage volumes - and associated expenses – for machine learning



Build and implement continuously updating machine learning models 10x faster



Continuous learning loop via ongoing model (re)training and dynamic software updates via OTA

THE FUSION PROJECT | INITIAL USE CASE

How it works

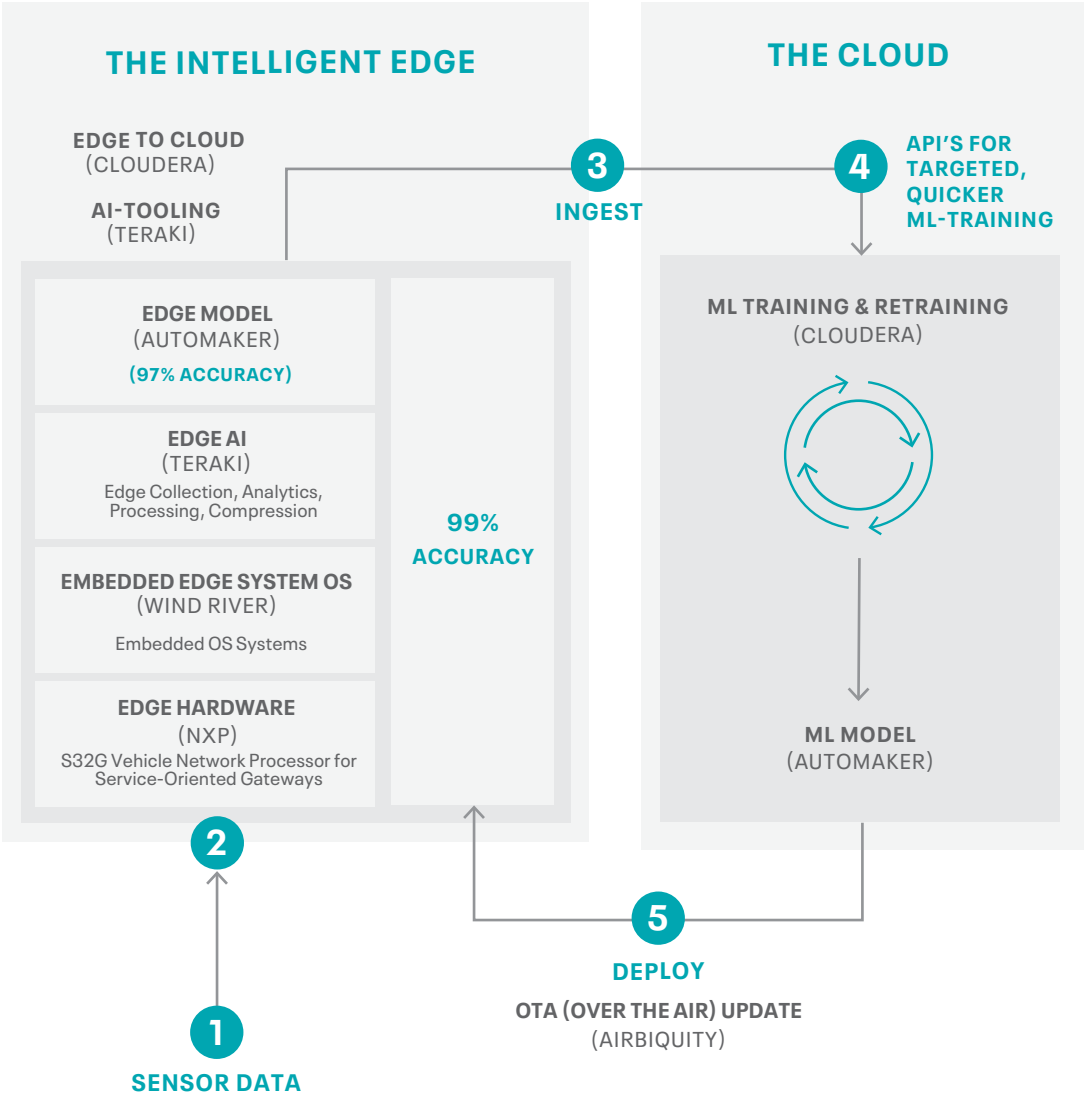
1 Vehicle sensor data is collected and processed on-board the vehicle using a combination of NXP BlueBox Autonomous Driving platform and the S32G GoldBox Service-Oriented Gateway platform running the Wind River Linux Operating System and Teraki Edge Analytics software.

2 The Teraki Edge software is configured by the customer to select the Lane Change events for those events to be ingested by the Cloudera ML Platform

3 Processed vehicle data is transmitted off-vehicle to the Cloudera Data Platform integrated with the Teraki Platform for additional analytics, machine learning, reporting and storage

4 Via API's customers can configure what information they want to ingest from their fleets of cars to train a specific AI-model. This accelerates the training of customers' AI-models significantly

5 On-board Teraki Edge Analytics Modules are automatically updated using the Airbiquity OTAmatic Software Update Client on the NXP S32G using Wind River Linux and managed with the OTAmatic Software Update



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