The Fusion Project

Enabling Intelligent Connected Vehicles with a

CONNECTED DATA LIFECYCLE

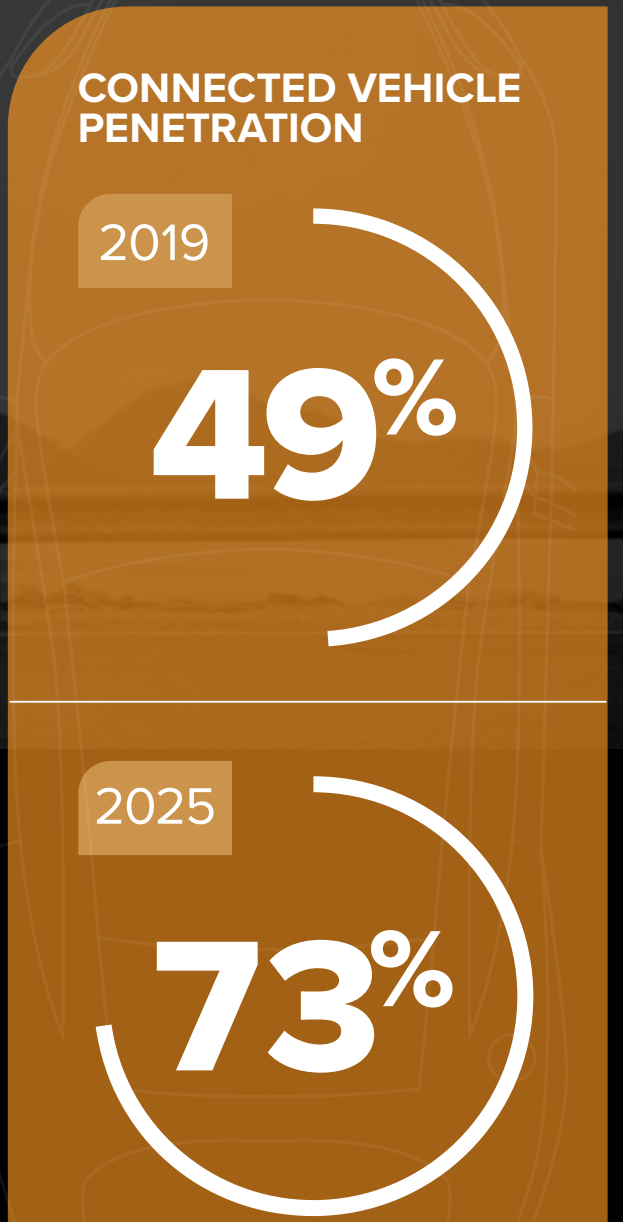
Airbiquity CLOUDERA NXP TERAKI WNDRVR

MARKET DYNAMICS

The Connected Vehicle is Here Today and Getting More Intelligent

The digital revolution is making a deep impact on the automotive industry, offering practically unlimited possibilities for more efficient, convenient, and safe driving and travel experiences. This revolution is just beginning to accelerate – in 2019 44 million connected vehicles were produced representing a connected vehicle penetration of 49% considering the 90 million vehicles built globally. That number is set to increase to 80 million by 2025 representing a 73% penetration.

CONNECTED VEHICLE PENETRATION



44 MILLION CONNECTED VEHICLES

VEHICLE BIG DATA OPPORTUNITY

CONNECTED VEHICLE USE CASES

Three Phases of Connected Vehicle Use Cases

1 Emergency, Infotainment, and Location Based Services

Today, connectivity to emergency services (pioneered by GM OnStar®) are routinely provided within connected vehicles. In addition, modern cars have taken infotainment to the next level by delivering popular content to consumers through application services (i.e., Hulu, Pandora, and Spotify) streamed directly into the vehicle infotainment system or via smartphone connectivity (i.e., Apple Car Play and Android Auto). In addition, current connected cars are equipped with smart navigation features that include location-based services (i.e., locating restaurants, fuel stations, and other points of interest).

2 Advanced Vehicle and Fleet Analytics

In this phase vehicles are still often connected via so-called aftermarket solutions: retrofitted boxes or dongles that capture elementary data. Once vehicles are connected, their usage data can be analyzed both in real-time or aggregated over longer periods of time. Most of these applications are geared to optimize fleet usage and efficiencies. Furthermore, this can be accomplished at both the individual vehicle and fleet level. Use cases within this category include:

Usage and Feature Analytics
Real-time views and insights about vehicle feature usage by drivers and occupants

Vehicle Fleet Monitoring
Real-time views of vehicle fleet condition, utilization, location, efficiency, and other management parameters

Vehicle Health Monitoring
Real-time views of vehicle operational health and performance versus desired specifications

Usage Based Insurance
Insurance policies based on actual driving habits and associated risk assessments

CONNECTED VEHICLE USE CASES

3 Predictive Analytics and Machine Learning

Next-generation vehicles leverage service-oriented gateways offering edge processing and network acceleration to enable the third phase that unlocks the full value of vehicle data. This enables predictive analytics and machine learning to be employed to move beyond simple monitoring and reporting of connected vehicle and fleet usage towards predictive and contextualized service delivery, advanced driver assistance systems (ADAS), and autonomous driving capabilities. Use cases within this category include:

Predictive Maintenance
Alerting for "need for maintenance" based on current vehicle conditions versus historical fleet operation benchmarks.

Advanced Vehicle Diagnostics
Intelligent fault diagnostics based on vehicle conditions and learnings gleaned from fleet service histories.

Service Next-Best-Actions
Service recommendations based on vehicle conditions and service success insights gleaned from fleet service repair histories.

Advanced Driver Assistance Systems (ADAS)
Vehicle features that provide partial automation such as parking assistance, automatic emergency braking, aadaptive cruise control, forward collision warning, adaptive front lights, back side monitoring, and traffic signal recognition.

Autonomous Driving (AD)
The world is eagerly anticipating the introduction of fully autonomous vehicles, whether they be autonomous taxis, ganged - long haul fleet trucks or personal passenger vehicles. The lure of fully autonomous vehicles is compelling– mobility for those not qualified to drive (sight, physical impairment, etc.), gaining time for relaxing or working instead of sitting behind the wheel or the pursuit of greater safety, as it is estimated that autonomous vehicles could reduce traffic accidents 90% and save over 300,000 lives over the upcoming decade.

THE CONNECTED VEHICLE ECOSYSTEM

The Connected Vehicle Machine Learning Lifecycle

Critical to the evolution of intelligent connected vehicles is a robust machine learning (ML) process. To understand this process within the context of connected vehicles, consider the following phases of the connected vehicle machine learning lifecycle:

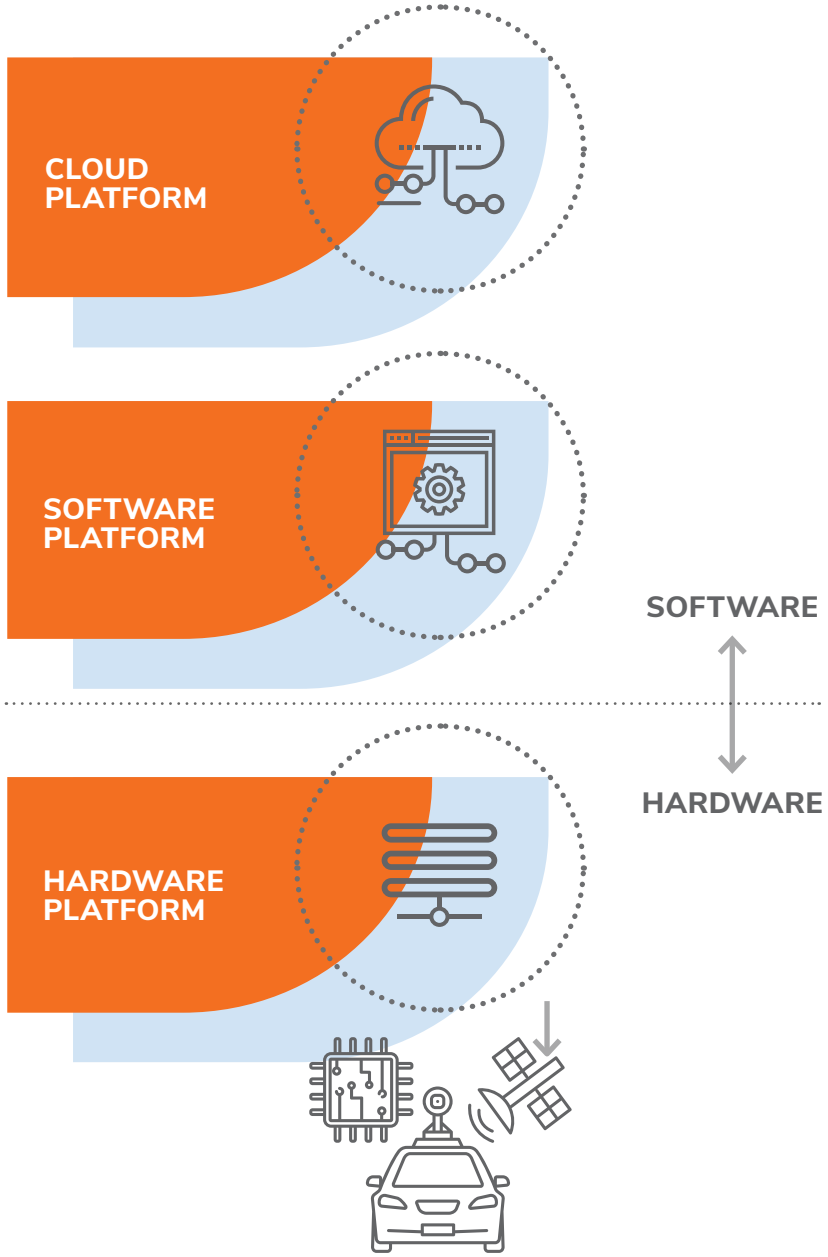
- **Data Collection:** Connected vehicle telemetry (speed, acceleration, location, etc.) data, in addition to ADAS related data sources, such as CMOS image sensors, radar, LiDAR, IMU data (gyroscope, accelerometer), engine information and ultrasonic sensors is collected, creating real-time data streams. For reference, an autonomous vehicle can generate between 5TB and 20TB of data per day, per vehicle.

- **Intelligent Edge Processing and Analytics:** Within the vehicle, edge processing of vehicle data, leveraging the execution of intelligent AI/ML inference models (including data reduction), is applied to data streams. Next, data is intelligently filtered, prioritized and securely and reliably transmitted to the Cloud.

- **Data Storage and Processing:** Data is collected and processed across on premise data centers, or cloud platforms, providing elastic storage and compute resources that are scalable to demand, enabling data storage, processing and self-service analytics incorporating petabytes of data.

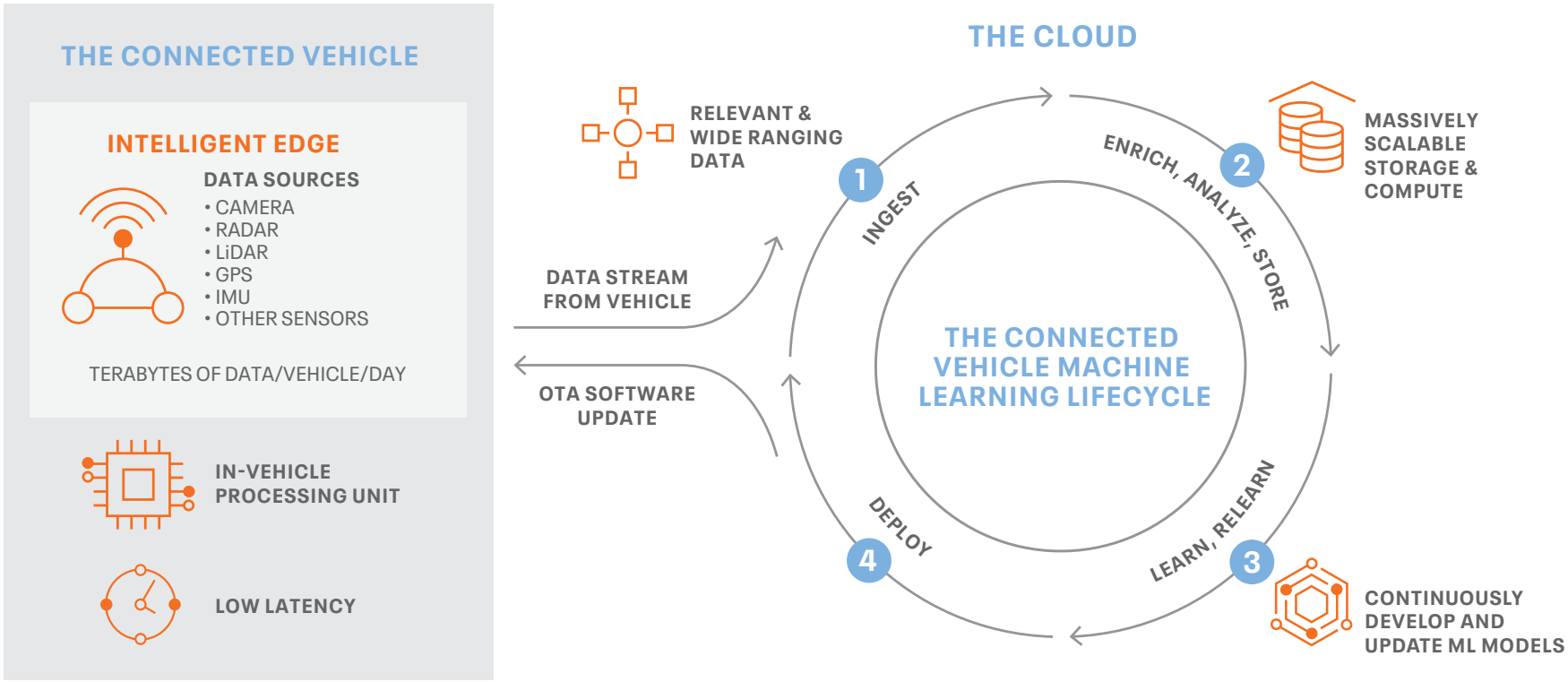
- **Machine Learning:** Leveraging histories of connected vehicle data, machine learning models are generated and continuously updated for use cases ranging from emergency and location-based services to predictive analytics like ADAS.

- **Deployment of Models**: Rapid remote deployment of new or updated applications and services, machine learning models, and security and safety patches are provided via over-the-air (OTA) software updates.



THE CONNECTED VEHICLE ECOSYSTEM

The Connected Vehicle Machine Learning Lifecycle



CHALLENGES

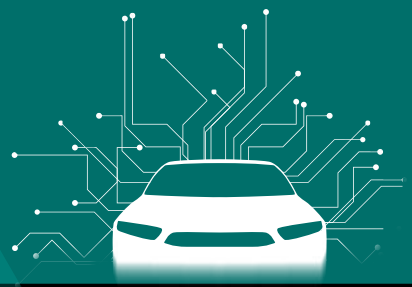
Challenges with Existing Approaches to a Fragmented Machine Learning Data Management Lifecycle

As advanced use cases move forward, the existing infrastructure of the connected car is being stressed. Within the vehicle, current electronics and wiring infrastructures were not designed for this complex data wrangling capability. Adding more wires and throwing more compute hardware to the problem is simply not viable considering the cost and complexities of today's connected cars or the additional demands designed into electric cars (like battery management systems and eco-trip planning). In addition, moving outside the vehicle, existing fragmented approaches for data management associated with the machine learning lifecycle are limiting the ability to deploy new use cases at scale. The following sections provide a deeper understanding of these limitations and set the stage for a more comprehensive and effective solution.

5-20

TERABYTES OF DATA/ VEHICLE/DAY

An autonomous vehicle can generate between 5-20 terabytes of data per day, per vehicle.



CHALLENGES

Fragmented Data Management Lifecycle

Historical approaches to the connected vehicle machine learning lifecycle have resulted in fragmented capabilities across the ingestion, enrichment, learning and deployment phases resulting in several negative outcomes including high integration costs, difficulty collaborating across solution components, suboptimal end-user experiences and generally non-optimized performance. These challenges result from the following limitations:

- **Limited ability to ingest real time data from vehicles**
- **Limited ability to combine all types of data to build machine learning models**
- **Limited integration between data management, business intelligence and ML platforms**
- **Limited ability to provide end-to-end data security, governance and lineage across the ML life cycle**

Static Software and ML Models

Legacy vehicle architecture design and hardware limitations prohibit on-board embedded machine learning models to be updated via OTA on-demand or in real-time. Instead, dongles or other hard-wire connections are used. Historical challenges in this area are:

- **Inability to dynamically perform multi-ECU software updates**
- **Inability to dynamically update and continuously train on-board ML models via OTA to improve system performance**

CHALLENGES

Limited Intelligent Edge Capabilities

Intelligent edge computing empowers advanced use cases to make independent decisions with up-to-date machine learning models in real-time, considering the safety of both the passenger and pedestrians is at stake. Poorly trained machine learning models that are not trained efficiently, on-board hardware (CPU/RAM) or power limitations and data transfer latency caused by processing high amounts of sensor data are the root cause to the following challenges used to empower the intelligent edge:

- **Limited access to vehicle-wide data**
- **Insufficient ML model accuracy and reliability**
- **Data transfer latency > 10s of milliseconds**

Unoptimized Edge Hardware Solutions

A typical car has over 6,000 feet of wiring and 30-150 ECU's that control modern electronics. Adding more of either is not economically viable as the industry moves to newly developed electric and autonomous vehicle platforms. Vehicle electrical power production and distribution is also limited. As such older generation power hungry devices limit the number that can be installed and typically lack the data bandwidth necessary future vehicle platforms. Challenges that result from the current infrastructure:

- **Power hungry processing**
- **Networking data bandwidth limitations**
- **Insufficient safety and security support**

THE FUSION PROJECT SOLUTION

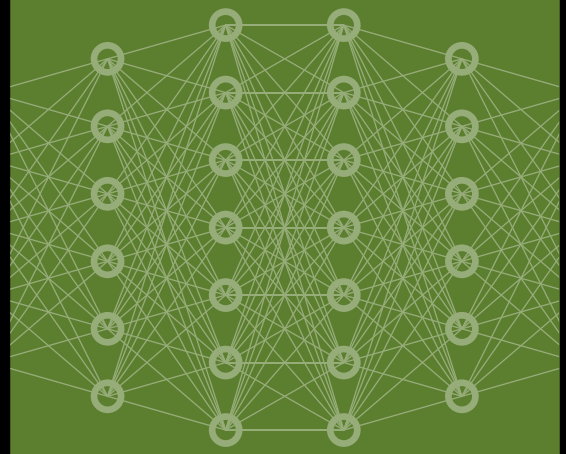
Next Generation Architecture for Success

Connected Vehicle Data Lifecycle Management

Future connected vehicles will rely upon a complete data lifecycle approach to implement enterprise level advanced analytics and machine learning. To create a complete seamless data lifecycle, all components of the lifecycle must seamlessly integrate, from data ingestion and reduction on a service-oriented gateway that has the speed, bandwidth, security and connectivity to successfully address data pass-through to the cloud, to a machine learning platform with the scalability to ingest, process, and create/update machine learning models from widely ranging data sources, to finally deploying new or updated machine learning models to vehicles via OTA updates that exceed data fidelity and model accuracy expectations. A successful next generation architecture must embody key characteristics including embedded intelligent edge computing, a secure and reliable embedded edge operating system, the ability to provide dynamic over-the-air updates and an enterprise level advanced analytics and machine learning platform.

AI powered neural networks can achieve

correct decision making



Source: McKinsey & Company

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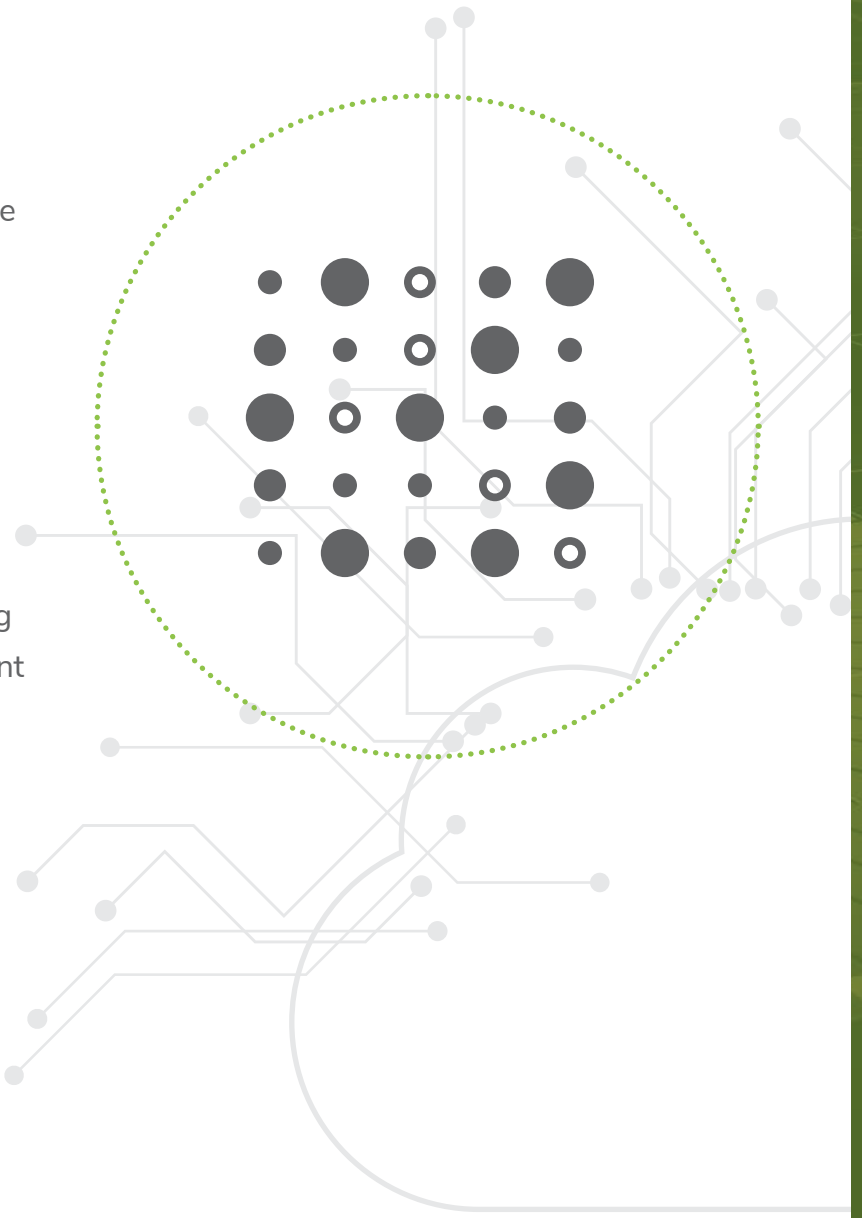
Embedded Intelligent Edge Computing

Successful intelligent edge computing enables up-to-date machine learning models that are founded upon thoughtful hardware and software. The key is to combine – at the edge – a deterministic reduction technology with an intelligent selection of information (events, objects, situations) that are relevant to the application. Architecture that can address both on-board power limitations and data transfer latency, and intelligently pre-process the high amounts of sensor data are now a reality. The solution delivers: accurate ML models built in a short cycle time frame and achieving 99%+ reliability with the ability to store, process, and send relevant information via low powered hardware devices at the edge.



By **2023**

more than 50% of enterprise-generated data will be created and processed outside the data center or cloud, up from less than 10% in 2019.

Source: Gartner

THE FUSION PROJECT SOLUTION

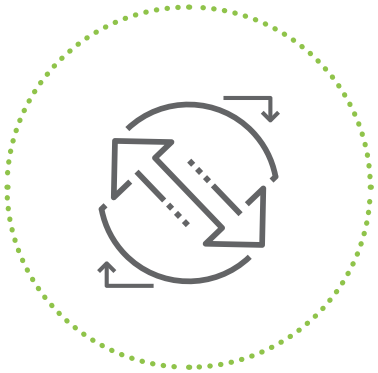
Secure, Reliable Embedded Intelligent Edge Network Processing

Gateways based on service-oriented architecture (SoA) are compute platforms that deliver high-performance vehicle networking with a range of external and internal connectivity (Ethernet and CAN) allowing for real-time ECU consolidation for vehicle-wide data access. Network hardware accelerators optimize SoA data traffic and offload processor cores to focus on valued services.

The solution offers:

Direct SoA data traffic to optimal host/virtual machine

Advanced data filtering and firewalling based on traffic fields (e.g., SOME/IP header fields)



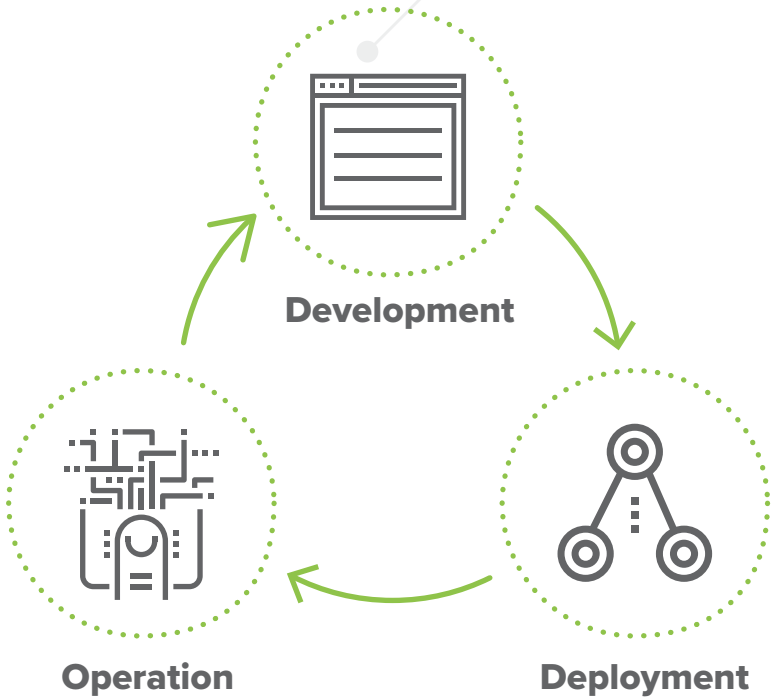
Hardware isolation technology to isolate system memory and peripheral (trusted/untrusted, safety/ non-safety critical)

THE FUSION PROJECT SOLUTION

Secure, Reliable, Open Source Embedded Edge Operating System

Solutions based on a service-oriented architecture (SoA) require a secure, reliable embedded edge operating system supportable during the development, deployment and operation of the intelligent edge systems within a vehicle. Leveraging open source requires long-term support, maintenance, and security vulnerability monitoring. These become the key requirements for a production-grade deployment of a service-oriented architecture.

- **Embedded Linux for the intelligent edge**
- **Robust, secure, and reliable operating system environment**
- **Long-term support, maintenance, and security vulnerability monitoring**
- **Development, deployment and operation lifecycle**



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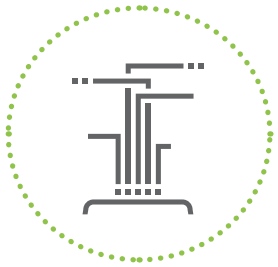
Over-the-Air Update

Automated and secure OTA service delivery capabilities work to overcome the increasing complexity of executing multi-ECU software and data campaigns for millions of vehicles with a multitude of hardware components and associated software files. System and application software embedded in vehicle devices can be updated as needed, including on-board analytic and machine learning models powering sophisticated ADAS and autonomous driving functions. Software update and data management campaigns are efficiently planned and executed using cloud-based back-end management tools.

Capabilities include:



Over-the-Air Orchestration
Policy-Driven Dependency, Rollback, and Recovery

End-to-End Security
Standards-Based Certification, Authentication, and Encryption

Data Management Framework
Dynamic Data Collection and Upgradable Analytics

Campaign Management
Campaign Creation, Approvals, Reporting, and Administration

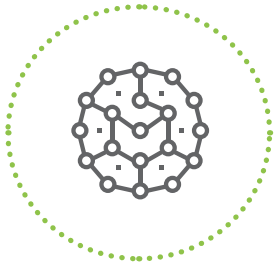
THE FUSION PROJECT SOLUTION

Enterprise Class Advanced Analytics and Machine Learning

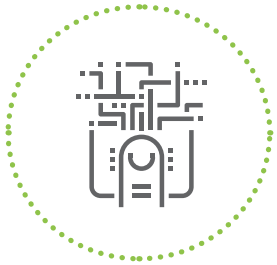
Enterprise data analytic power is a strong advantage when building connected vehicle edge-enabled machine learning capabilities. Considering the double-digit growth rate of the connected vehicle segment, legacy on-prem storage/analysis platforms or cloud data analytics point solutions do not offer real-time streaming analytics or scalable solutions providing machine learning at reasonable ROI. A data management platform enables real-time analytics on streaming data and effectively ingest, store, and process streaming data in real time or near-real time in order to instantly deliver updated models to the vehicle through OTA technologies.

The solution offers:

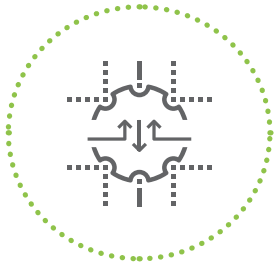
Ability to ingest and deploy real time vehicle data



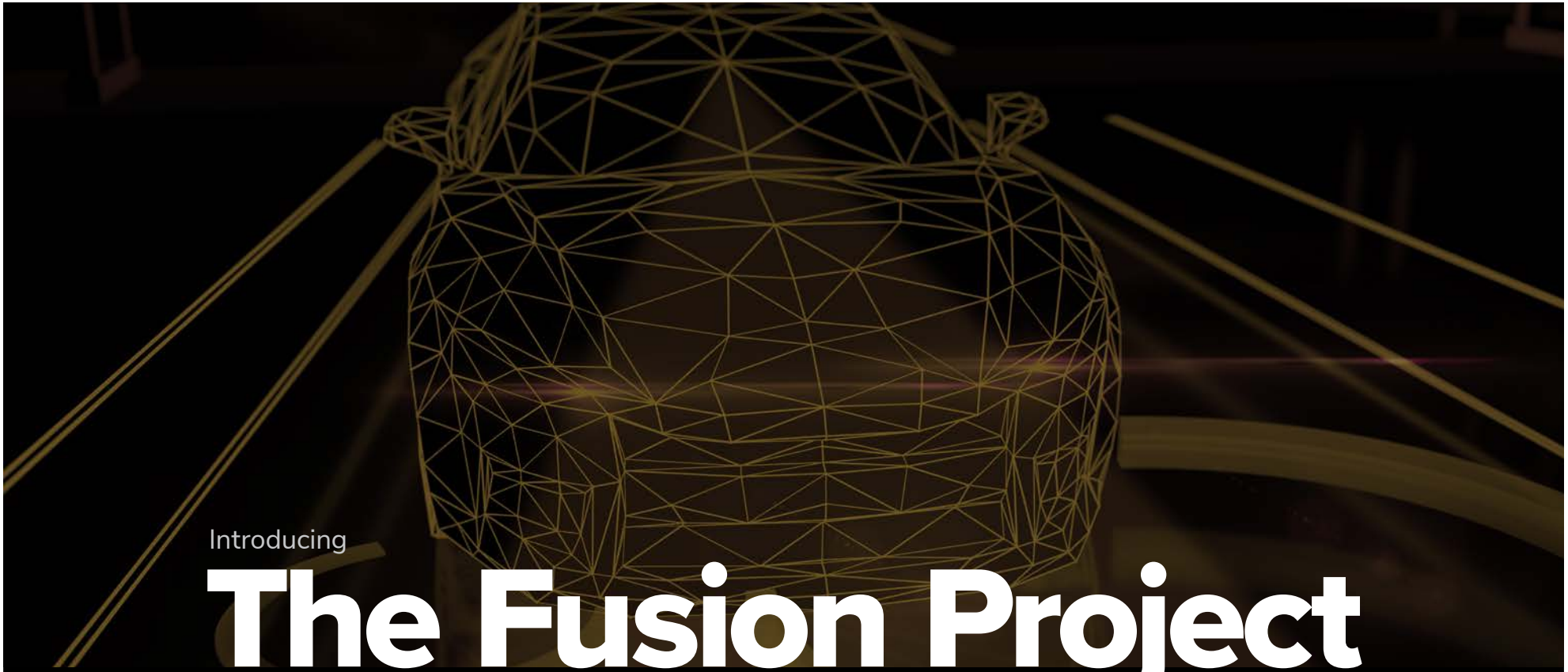
Ability to combine all data types and schemas required to build accurate machine learning models



A fully integrated data management, BI and ML platform, eliminating the challenges associated with point solutions



Data security and governance across the ML life cycle from ingest to deployment



Introducing

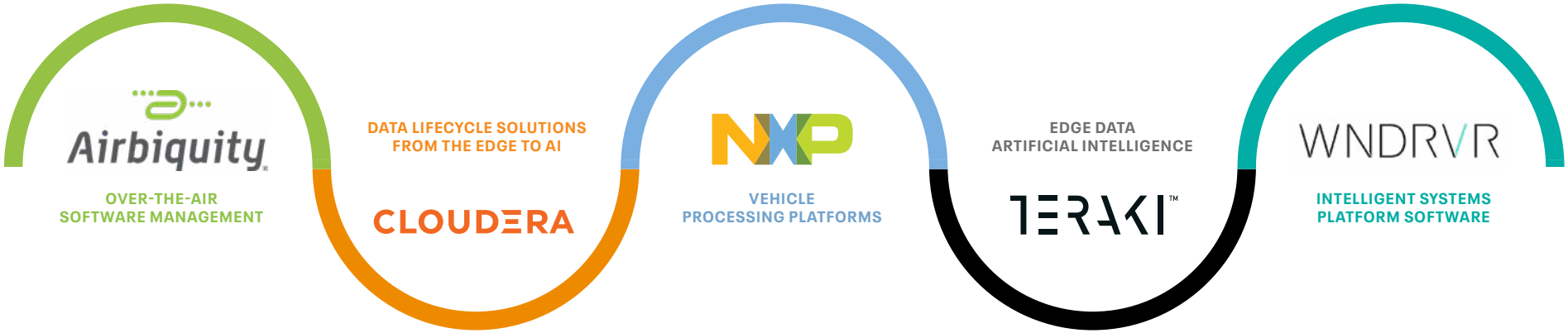
The Fusion Project

A multi-party automotive industry technology collaboration to define a data lifecycle platform for enabling and optimizing future connected and autonomous vehicle systems

THE FUSION PROJECT

The Fusion Project Collaboration – Driving Success

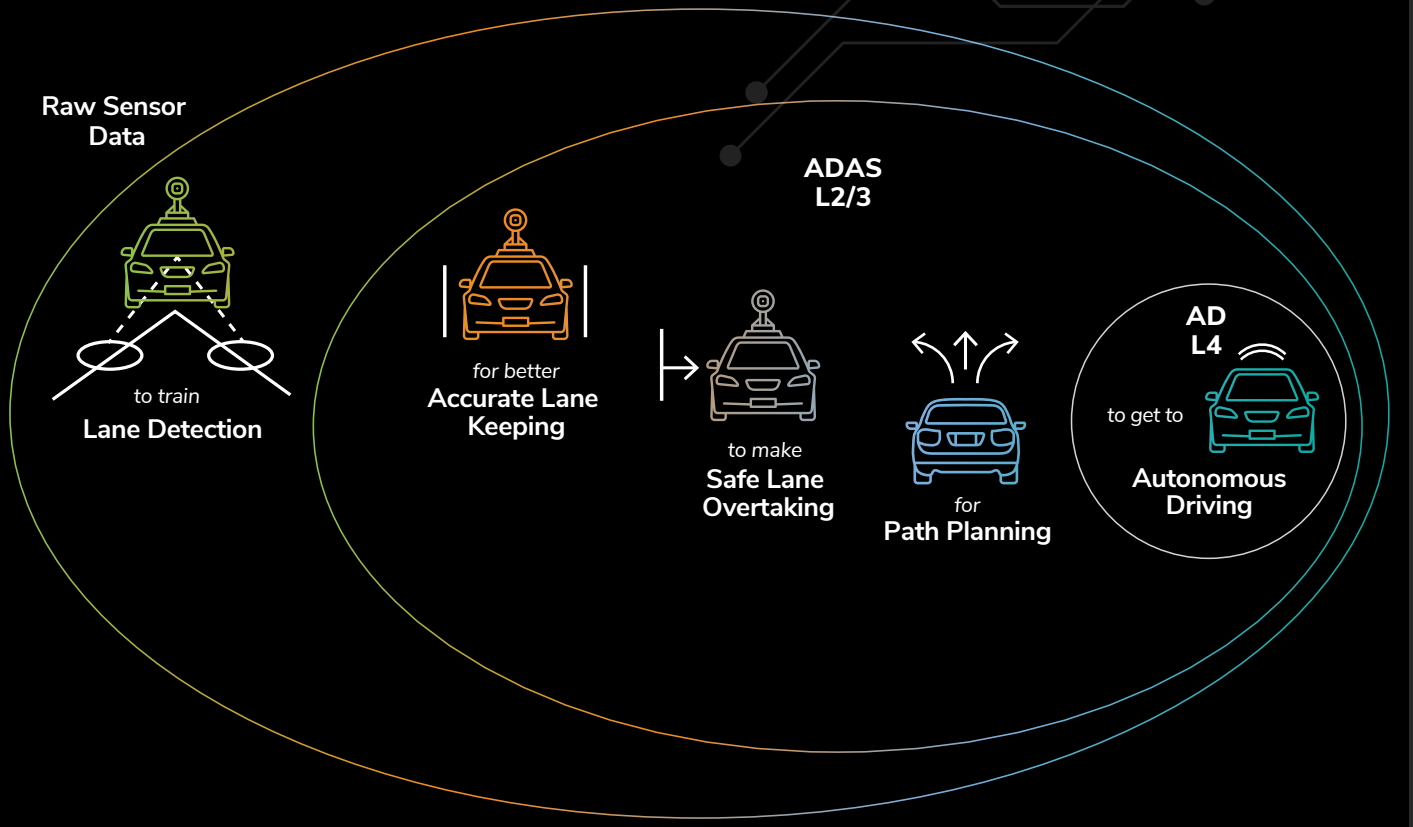
Airbiquity, Cloudera, NXP, Teraki, and Wind River have teamed up to provide an integrated solution from vehicle edge to cloud addressing the challenges associated with a fragmented machine learning data management lifecycle. The group has collaborated to define, implement and offer a data lifecycle platform 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 are 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.



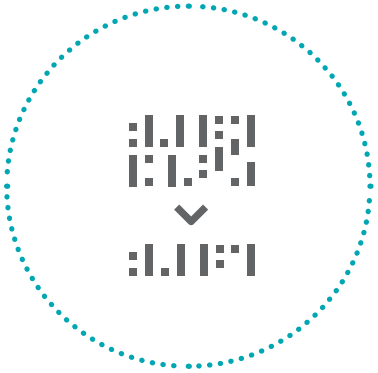
THE FUSION PROJECT | INITIAL USE CASE

Intelligent Vehicle Lane Change Detection (continued)

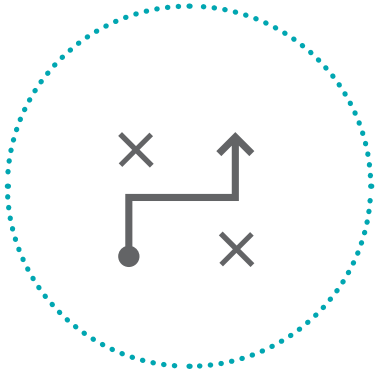
The Use Case Goal:

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.

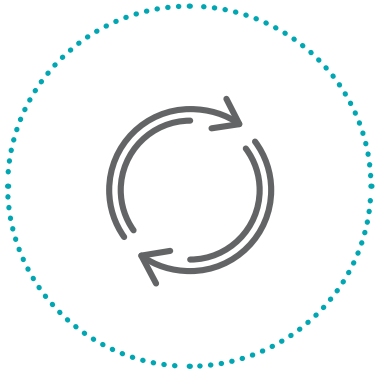
Attributes of the solution include:



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



Build machine learning models with 99%+ accuracy in +10x less training time on low-powered production hardware

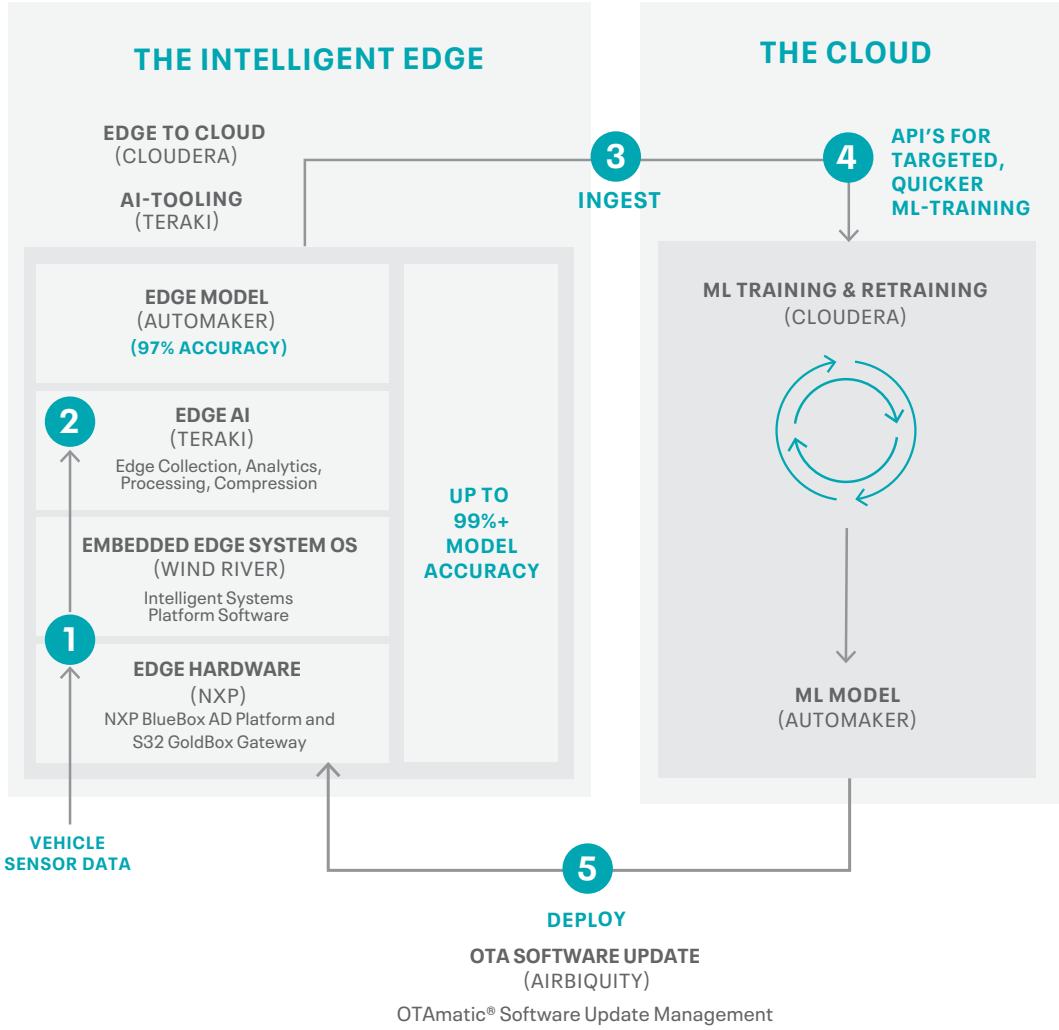


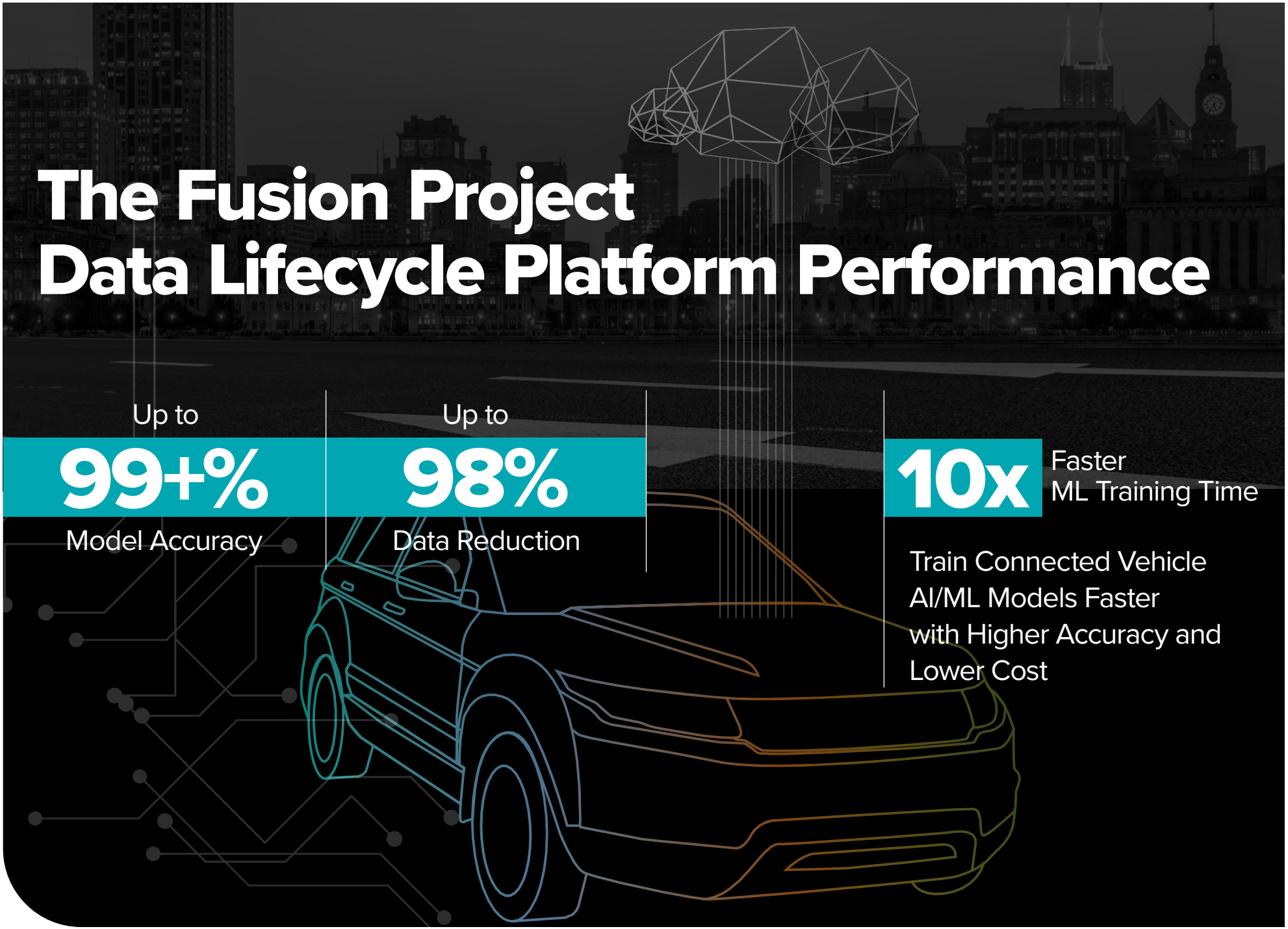
Continuous learning loop via ongoing model (re)training and dynamic software updates via OTA

THE FUSION PROJECT | INITIAL USE CASE

Intelligent Vehicle Lane Change Detection

1. High-speed vehicle sensor data is collected and processed in the vehicle. — NXP WNDRVR
2. Edge AI software is configured by the customer to select the Lane Change events to be ingested by the cloud ML platform. — TERAKI
3. Processed, AI-relevant vehicle data is transmitted to the cloud for additional analytics, machine learning, reporting and storage. — CLOUDERA
4. Customers can configure information to be ingested from their fleet to train specific AI-models. This significantly accelerates the training of customers' AI-models. — CLOUDERA TERAKI
5. Analytics Modules are automatically updated via over-the-air (OTA) software updates. — Airbiquity



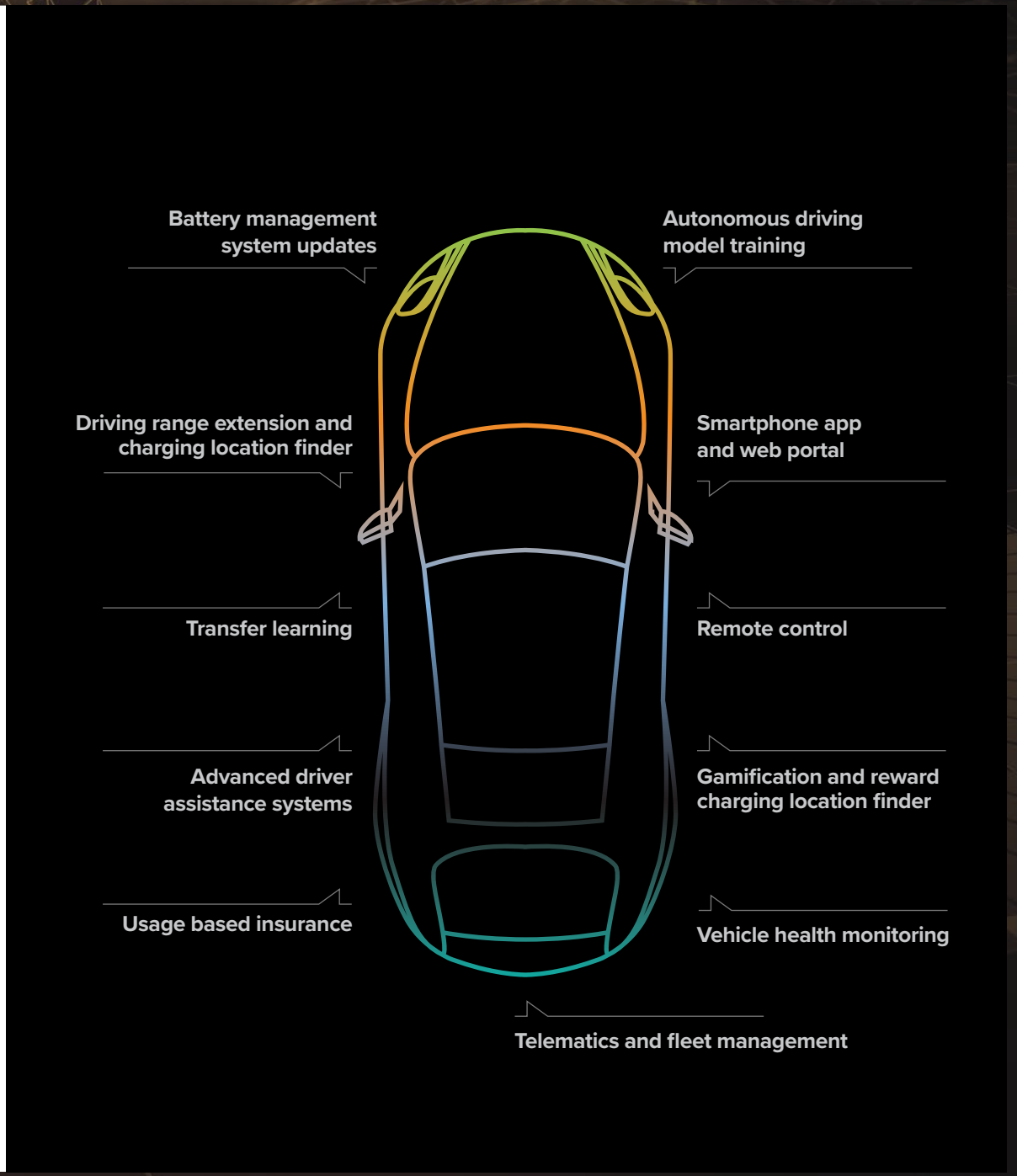

The Fusion Project
Data Lifecycle Platform Performance
Up to
99+%
Model Accuracy
Up to
98%
Data Reduction
10x
Faster
ML Training Time
Train Connected Vehicle AI/ML Models Faster with Higher Accuracy and Lower Cost

THE DATA LIFECYCLE'S FUTURE USE CASES

The Connected Future

By creating a capable data lifecycle platform from data ingestion through OTA machine learning model updates Airbiquity, Cloudera, NXP, Teraki, and Wind River have opened the door for future advanced use cases that enable market-leading connected and autonomous vehicle systems.

It's a fully integrated hardware and software platform for automotive customers to choose and train their own ML-models. Secondly to enable such models to be trained 10x quicker and thirdly, a working platform to keep updating these models – as more data – is being collected over time in different situations. One of the consequences is that the IP and future developments are owned by the OEM – giving flexibility and tech ownership.



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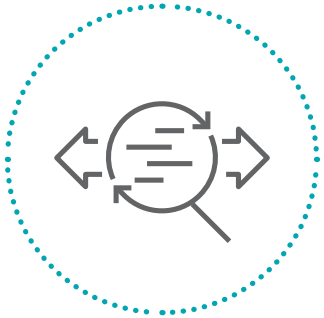
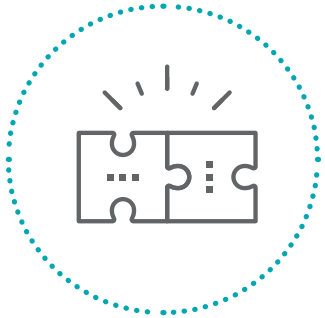
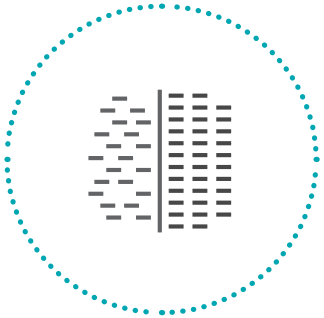
Value Delivered to Connected Vehicles



End-to-End Data Management Solution
Platform enables automakers to efficiently collect, analyze, and manage connected vehicle data for continuous feature development, deployment, and evolution



Production Grade
Pre-integrated platform makes it easier for automakers to conduct technical evaluations and introduce the solution into the current vehicle production process



Open and Flexible
Automakers can conceptualize, create, improve, and own their own ML algorithms and become "IP-independent" of ADAS/AD software suppliers

Scalable
Platform can be used to enable multiple wide ranging use cases across connected intelligent vehicles, thereby amortizing your technology investment

Secure
Data security through-out the data lifecycle from in-vehicle to cloud and return

THE FUSION PROJECT COLLABORATORS

Airbiquity

Connected vehicles are increasingly enabled to receive over-the-air (OTA) updates for software reliant systems and components, and data transmission to power new services and business optimization efforts. Automaker benefits are significant: mitigation of recall expenses, faster cybersecurity response, post-sale vehicle performance and feature enhancements, and improved operational efficiencies to name a just a few. But along with the benefits comes a need to manage the increasing complexity of executing multi-ECU software and data campaigns for millions of vehicles around the world with a multitude of hardware components and software files from numerous suppliers.

Airbiquity's OTAmatic® offering addresses this need today with an automated and secure OTA service delivery capability tailored for automotive. Using a sophisticated back-end management portal, automotive customers can efficiently execute multi-ECU software and data campaigns—at scale—with highly refined vehicle and device targeting, discrete policy and privacy control, and consumer alerts.

OTAmatic delivers:

- Security and efficient orchestration of connected vehicle software update and data management campaigns from the cloud
- Sophisticated back-end service delivery management capability with highly refined vehicle and device targeting, multiple and parallel software updates, discrete policy and privacy controls, customizable consumer communications, and solution deployment flexibility
- Edge analytics framework supporting upgradable data analytics models and enhanced multi-layer cybersecurity protection via integration of the compromise resilient Uptane Security Framework

https://www.airbiquity.com/

Keefe Leung

Vice President of Product Management

"OTA software and data management capabilities are foundational for the continued evolution of ADAS and autonomous driving features. OTAmatic provides these capabilities today, including support for updating on-board analytic module software that is crucial for these systems to work effectively and efficiently."

THE FUSION PROJECT COLLABORATORS

CLOUDERA

Today, leading automotive companies worldwide are adopting an enterprise data cloud strategy using the Cloudera Data Platform to manage the end-to-end data journey from absorbing raw data at the source, creating autonomous decision making, to driving actionable insights and value-producing use cases.With Cloudera, manufacturers can ingest data from a variety of sources including streaming and enterprise data sources, store and process it across hybrid infrastructures, run analytics or apply machine learning algorithms to all data, all while maintaining strict enterprise data security, governance, and control across all environments.

Attributes unique to CDP include:

- **Hybrid and multi-cloud**—provides choices to manage, analyze and experiment with data either on-prem and/or in any public or private cloud environments for maximum choice and flexibility
- **Multi-function**—solves the most demanding business use cases—applying real-time stream processing, data warehousing, data science and iterative machine learning across shared enterprise and real time data at scale
- **Secure and governed**—simplifies data privacy and compliance for diverse enterprise data with a common security model and governance (powered by Cloudera SDX) to control data in an on-premise, public or private cloud - or hybrid environments
- **Open**—facilitates the continuous innovation of the open source community, the choice of open storage and compute architectures, and the confidence and flexibility of a broad eco-system

https://www.cloudera.com/

Michael Ger

Managing Director
Manufacturing and Automotive

"Imparting intelligence into connected cars is complex - involving hardware, software and deep domain expertise. Cloudera is proud to provide the underlying data management fabric to the solution – everything from reliably moving connected vehicle data to the Cloud, to providing large scale data storage, processing, analytics and machine learning – the foundations of real time insights and in-vehicle decision making."

THE FUSION PROJECT COLLABORATORS

NXP is a leading automotive semiconductor provider that offers automotive processing solutions across multiple vehicle application domains. The NXP S32 Automotive Platform is a scalable computing platform that balances performance and power efficiency with microcontrollers and processors optimized for each vehicle domain. They're designed to address current and future connectivity, security, and safety challenges.

S32G VEHICLE NETWORK PROCESSORS

NXP's S32G Vehicle Network Processors are a combination of safe and secure, real-time and application processing, with embedded hardware security, network acceleration and heterogeneous vehicle network interfaces. The S32G processors enable modern service-oriented gateways for rapid deployment of new vehicle capabilities and advanced edge-to-cloud analytics to unlock the value of vehicle data.

S32G GOLDBOX

The NXP GoldBox is a compact, highly optimized and integrated reference design featuring the S32G vehicle network processor. With its high-performance safe and secure computing capacity and rich networking interfaces, the GoldBox can support several automotive applications such as service-oriented gateways, vehicle central compute, domain controllers, safety processors and black boxes. Carmakers, suppliers and software ecosystem partners can directly use the GoldBox to help accelerate development for shorter time-to-market.

NXP BLUEBOX

The NXP BlueBox is an Automotive High Performance Compute (AHPC) development platform that provides the required performance, functional safety and automotive reliability for engineers to develop ADAS applications, self-driving cars, and innovate with new vehicle networking architectures and safety concepts. The BlueBox combines automotive-grade embedded compute, safety and networking processors with expansive I/O connectivity and an integrated Software Development Environment(SDE) enabling safe, reliable and scalable AHPC solutions.

https://www.nxp.com/Automotive

Brian Carlson

Director, Global Product and Solutions Marketing

"NXP is securely connecting our vehicle-wide S32 automotive edge processing platforms with the cloud to empower new data-driven services and business opportunities. This vehicle edge processing is critical to reduce the amount of data sent to the cloud for economic feasibility, as well as support vehicle-wide over-the-air updates and machine learning model deployment to drive the future of upgradable vehicles."

THE FUSION PROJECT COLLABORATORS

TERAKI™

Teraki is the leading provider of embedded, sensor data pre-processing software for the Automotive and Mobility industry. The solution enables hardware (ECU, TCU, microcontrollers, gateways, sensors) to process 10X more data without any loss of information. By this, Teraki's technology enables data driven automotive applications to truly scale for production.

Teraki's deterministic, pre-processing technology that speeds up AI and NN models as well enables these to become more accurate. The embedded software intelligently pre-processes signals at the edge from telematics (1D), camera (2D) and LiDAR/radar (3D) and conforms to automotive safety standards.

Cameras, LiDAR, and radar are essential for autonomous driving. Teraki makes them 10x more efficient. Furthermore, energy consumption is drastically reduced thanks to the lower computational demands – important for a car's mileage reach and fuel efficiency. Teraki technology enables state-of-the-art AI-models, that detect, predict and decide.

Teraki's platform is the automated AI-tool to train AL-models quicker and increase precision/recall accuracy to 99%+ levels. For series production cars, Teraki delivers factor 10x operational efficiencies in BoM, power consumption, data transmission and latency for running these AI-models locally in the car.

It is applied by customers for use cases as: autonomous driving, remote control, fleet management, predictive maintenance, driver monitoring, range extension and ADAS.

In short: scalable and highest efficiency combined with highest achievable AI-model accuracy.

https://www.teraki.com/usecase-autonomous-driving/

Geert-Jan van Nunen
Chief Commercial Officer

"Significantly improving system decision/detection accuracy for machine learning models embedded in the vehicle achieved with with low-powered, production-grade hardware at real-time latency is a new solution. No other technology can obtain the results seen."

THE FUSION PROJECT COLLABORATORS

WNDRVR

Wind River® provides the industry's most advanced embedded Linux development platform, with a comprehensive suite of products, tools, and lifecycle services to help our customers build and support intelligent edge devices in segments such aerospace & defense, industrial, medical, automotive and more.

Wind River Linux is the market leader for building outstanding embedded products based on open source innovation, ensuring customers work with the latest code from the most important open source efforts and most recent technologies.

Wind River® Linux enables you to develop, deploy and operate robust, reliable and secure Linux-based edge devices and systems without the risk and development effort associated with roll-your-own (RYO) in-house efforts. Wind River provides an offering to keep your code base up to date, track and fix defects, apply security patches, customize your runtime to adhere to strict market specifications and certifications. Additionally, Wind River can facilitate your IP and export compliance, and significantly reduce your costs.

Wind River is the global leader for nearly 40 years in the embedded software industry, with decades of expertise, more than 15 years as an active contributor and committed champion of open source, and a proven track record of helping customers build and deploy use case–optimized devices and systems. Wind River Linux, an intelligent systems platform software, is running on hundreds of millions of deployed devices worldwide, and the Wind River Linux suite of products and services offers you a high degree of confidence and flexibility to prototype, develop, and move to real deployment.

https://www.windriver.com/markets/automotive/

Matt Jones
Vice President,
Global Engineering

"The same mission critical focus that we deliver to our aerospace and defense industry is being offered to this novel solution for automotive. Wind River is a known leader in delivering secure, open source solutions."

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