

## SOLUTION BRIEF

# Global 100 Automotive Manufacturer

10X faster analysis and reporting time working on the edge

### CUSTOMER

Global 100 automotive company

### DATA CHALLENGE

Data inconsistencies slowing analytics cycle-time

### OBJECTIVE

Improve all aspects of data consumption

### SOLUTION

Extract insights from data at the edge, with Viviota TTI and HPE Edgeline

### RESULTS

Data management improvements speed time-to-market

*Today, manufacturing leaders must leverage Industrial IoT technologies to capture data, gain insights and improve efficiencies. The power of sensor data analysis to reduce operational cost is just beginning. Industrial companies need to analyze IoT sensor data to build better products and processes. But, when data volumes are huge, traditional IT isn't enough, operational technology and IT need to collaborate.*

### SUMMARY

A Global 100 automotive manufacturer implemented the Viviota Time-to-Insight™ Software Suite (TTI), with an HPE Edgeline EL4000, and gained significant efficiencies in critical powertrain analysis processes. Among these processes was a powertrain Electronic Control Unit (ECU) mapping optimization. With the Viviota solution, processing time for this test was reduced from several hours to just a few minutes, dramatically reducing overall test time by several hours per test run. The TTI solution provided several efficiency improvements including:

- Identification of bad data for process efficiency (e.g. elimination or isolation)
- Improved quality of good data
- Faster access to all data via search engine for previously unsearchable content
- Improved overall system performance due to more than 15x faster analytics

### DATA CHALLENGE – DATA INCONSISTENCIES

For the powertrain calibration analytics, a transmission in a test cell is instrumented with several hundred sensors. As the test is run data from each sensor is collected for analysis and organized in its own container, called a channel. Tests can be run for several hours resulting in hundreds of very large channels for analysis.

Engineers each developed their own solution to manage sensor data from the test cell. The analysis required the use of several test runs' data. File formats were not standardized across the team, data was kept on different drives and network locations; over time the data became unwieldy and data preparation for analysis was time-consuming and inefficient. Even the most basic pre-processing of data, such as unit conversion and invalid data removal, had to be manually performed. Consequently, it took more than a workday to produce the final reports. These inefficiencies meant millions of dollars per year were spent preparing, analyzing and reporting data, and test cells lay idle much of the time.

### OBJECTIVE – DATA CONSUMPTION EFFICIENCIES

The manufacturer wanted a software platform capable of improving all aspects of their sensor data consumption—from management to analysis to reporting. They needed more confidence in their data, so they could trust the facts discovered from it. In addition to improved data integrity, the team needed insights from analytics faster to accelerate decision-making. Engineers could focus on higher value-add activities for product design and development rather than hours of managing data manually. This overall operational efficiency increase will reduce product time-to-market significantly.



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Viviota worked closely with the R&D management and engineering teams to outline the following goals for their powertrain analytics data project:

- Reduce overall analysis time to improve test cell utilization
- Accelerate ECU mapping optimization on equipment designed for edge computing
- Make previously unsearchable sensor data searchable
- Automate key steps in the data preparation process
- Provide easy-to-use data processing tools for the engineers

## **SOLUTION — VIVIOTA TTI AT THE EDGE**

The solution targeted three areas to meet and exceed the customer's objectives:

1. Automate data ingestion and preparation for data exploration
2. Make data searchable and shareable
3. Accelerate analysis at the edge to enable faster decision making

The solution platform includes Viviota's TTI software deployed on an HPE Edgeline EL4000. Overall system performance exceeded customer expectations by accelerating analytics and report generation by a factor of 10X. In addition to these immediate gains, the solution based on HPE Edgeline gives them a powerful server-class system at the edge for future growth in all aspects of their engineering challenges—data management, analysis and reporting.

Because both TTI and HPE Edgeline conform to IT best practices, integrating the solution into the manufacturer's existing environment was simple. As a converged system, the HPE Edgeline is capable of connecting directly to the I/O equipment used to capture sensor data. This reduces the system architecture and complexity, while improving overall performance. Because the HPE Edgeline EL4000 supports up to four independent server cartridges and expansion slots (e.g. PCI-Express or PXI), the system scales to support larger data acquisition and measurement subsystems without experiencing typical I/O delays (i.e. latency).

The same scalability the HPE Edgeline EL4000 platform affords I/O is also utilized by Viviota's TTI software suite. The fundamental processing components of TTI—DataPrep, DataLook and DataCrunch— distribute storage and execution across all available server cartridges to optimize data management, searching and analysis.

## **RESULTS — DATA MANAGEMENT IMPROVEMENTS SPEED TIME-TO-MARKET**

Viviota Time-to-Insight software, running on HPE technology, accelerated the sensor data analysis for significantly faster decision making. The original implementation lacked efficiency in data management and channel data analysis processing. Viviota's software running on an HPE Edgeline EL4000 improved performance in these areas and resulted in test cell utilization increasing by a factor of 10.

By using the HPE Edgeline EL4000, getting to answers faster did not result in higher integration, support or maintenance costs. With all data searchable and accessible through TTI, anyone in the engineering division—not just a test engineer—is able to explore the vast amount of sensor data from the test cell operations.



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