

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, manufacturers need powerful data management solutions that accelerate engineering analysis and innovation. Engineering teams want open interfaces to use their existing analysis software and shared access to comprehensive reliable data. Additionally, Engineers need to unlock all their data for analysis to reduce costs and improve product time-to-market.

SUMMARY

A Global 100 automotive manufacturer implemented the Viviota Time-to-Insight™ Software Suite (TTI) and gained significant efficiencies for their powertrain analytics process. Powertrain analytics included an Electronic Control Unit (ECU) mapping optimization. Processing time for this analysis was reduced from several hours to a few minutes, dramatically reducing overall time for ECU analytics. Engineers gained several advantages:

- Complete end-to-end automation of engineering data management tasks replacing manual processes and freeing engineers to focus on higher value-add activities
- Parallelized server-level processing for analytics providing up to 10X+ analysis processing time improvement and reducing test cell idle time
- Shortened ECU analytics cycle-time resulting in faster product time-to-market
- Data searching capabilities allowing engineers to easily find and access data across time and tests
- Reduced need for retests

DATA CHALLENGE – TEST DATA INCONSISTENCIES

Powertrain ECU mapping analytics require an automotive powertrain to be instrumented with several hundred sensors in a test cell. The test is run for several hours while sensor data is captured and stored to disk. Each test can generate hundreds of large data files. Each analysis requires data collected across several test runs.

Previously, each engineer in the department was using their own solution for managing and analyzing the sensor data from these tests. File formats and metadata 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 preprocessing of data, such as unit conversion, were performed manually. This, coupled with slow analysis software, resulted in analytics reports taking over 10 hours to produce. Since the test cell was waiting for input from the data analysis engineer, these inefficiencies meant that thousands of hours and millions of dollars were spent each year preparing, analyzing and reporting data, while expensive test cell assets lay idle.



MAKING SENSE OF SENSOR DATA

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OBJECTIVE – DATA ANALYTICS EFFICIENCIES

The manufacturer wanted a software platform capable of automating all aspects of their sensor data consumption — from management to analysis and reporting. The team required comprehensive and reliable data for more accurate analysis and reporting. Replacing slow and error prone manual processes with quality checked automated procedures along with universal access would allow engineers to focus on higher value-add activities for product design, prototyping and test.

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
- 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, metadata standardization and preparation for data exploration
2. Make sensor data searchable and shareable
3. Accelerate analysis at the edge to enable faster decision making

The solution platform included Viviota's TTI software deployed on an HPE Edgeline EL4000. Overall system performance exceeded customer expectations by accelerating analytics and report generation by over 10X. In addition to these immediate gains, the solution provided a powerful server-class system at the edge that will scale for future data management, analysis and reporting requirements.

TTI and the HPE Edgeline products are built for easy management by IT departments. The HPE Edgeline can connect directly to the I/O equipment used to capture sensor data through PXI expansion bays. This reduces the system complexity, while improving overall performance. The HPE Edgeline EL4000 supports up to four independent server cartridges and expansion slots (e.g. PCI-Express or PXI), so the system scales as the customer grows, without increasing complexity or latency.

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

RESULTS — DATA MANAGEMENT IMPROVEMENTS ACCELERATE PRODUCT TIME-TO-MARKET

Viviota Time-to-Insight software accelerated sensor data analysis for significantly faster decision making.

- Analysis and reporting time was reduced from 10 hours to under 10 minutes
- Standardizing on a metadata schema allowed engineers to analyze previously unused data, providing additional insight
- Data management and analytics processes were centralized, providing universal access throughout the department
- All data is searchable and accessible through TTI



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