Fortissimo Success Story

FORTISSIMO

Predictive diagnosis services for the automotive industry

Fortissimo Experiment Facts:
- Industry Sector: **Automotive**
- Country: **Italy**
- Software Used: **R, R Shiny**

THE COMPANIES

TEXA, an Italian SME founded in 1992, designs, produces and sells diagnostic instruments for cars, motor bikes, and other vehicles. This allows for services such as real-time monitoring of fleet vehicles. T2I is an Italian research organisation that supports companies through the design, development and testing of new products and services.

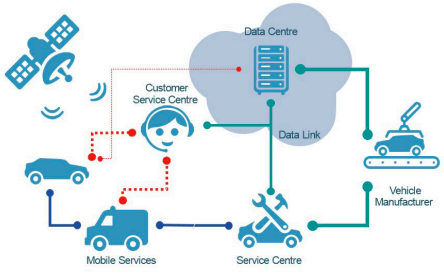
THE CHALLENGE

Vehicle manufacturers generally have limited knowledge of a vehicle's life once it leaves them. A service that can predict failures, mechanical problems or damage at the component level, and offer detailed information on these components, would be extremely valuable, saving manufacturers and fleet managers time and money. This service would gather and analyse data from TEXA's sensors, which could be used to redesign parts and modify maintenance schedules. This type of analysis requires significant computing power.

THE SOLUTION

During the experiments, four Data Analytics prototype services were defined. These are based information gathered from on TEXA's On-Board Diagnostics (OBD) systems. These services cover areas that may affect the reliability, condition, or service needs of a vehicle - such as how it is driven, failure patterns, and overall health of the vehicle.

A Cloud HPC-powered workflow was developed. This was designed to easily integrate into TEXA's existing automotive Data Analytics services. A service architecture has been defined that connects the existing TEXA infrastructure, equipped to collect data from installed black boxes, to an HPC Cloud provider.



BUSINESS IMPACT

For TEXA, the Net Present Value of these new services is estimated to reach an overall value of €1.2 M over the next 3 years. The ability to use an HPC-enabled workflow to analyse data from their diagnostics systems will enable better oversight of fleet vehicles and predict failures in time for these to be addressed quickly.

T2I will apply the principles developed here to offer HPC for predictive maintenance in other similar fields (mainly highly "sensorized" products in sectors like home appliances, smart buildings, and energy). T2I estimates a 5% increase in commercial revenues from related services, in years 2018 – 2020, worth up to €105k.

Fortissimo Experiment Partners:
- TEXA (End User)
- T2I (Application Expert)
- CINECA (HPC Provider & DA Expert)

More Information:
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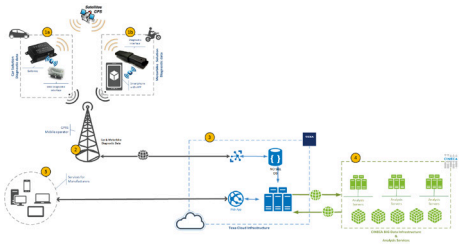

BENEFITS

- Development of a service using TEXA's 'black boxes', which can monitor and predict failures in fleet vehicles. This has value for both TEXA and its customers.
- New services have an overall value of €1.2 M over three years for TEXA.
- T2I increase revenue by 5% per year, worth up to €105k over three years.

THE FORTISSIMO PROJECT

Fortissimo is a collaborative project that enables European SMEs to be more competitive globally through the use of simulation services running on a High Performance Computing cloud infrastructure. The project is coordinated by the University of Edinburgh and involves more than 100 partners including Manufacturing Companies, Application Developers, Domain Experts, IT Solution Providers and HPC Cloud Service Providers from 14 countries. These partners are engaged in over 90 experiments (case studies) where business relevant simulations of industrial processes are implemented and evaluated. The project is funded by the European Commission within the 7th Framework Programme and Horizon 2020 and is part of the I4MS Initiative.

I4MS Fortissimo is part of I4MS ICT Innovation for Manufacturing SMEs: www.i4ms.eu

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