

Case Study: Big Data Lake for IoT Data

Predictive Maintenance: For large machines, the complexity of the products, components, parts and machine data requires big data integration. This allows for a richer analytics environment, and the ability to store and process a variety of data to gain new insights and ultimately to use Machine Learning for predictive maintenance.

This case study details a project to build a Hadoop Data Lake to help integrate data for faster analysis for a large equipment manufacturer.

The Problem

A large equipment manufacturer wanted to understand the behavior of their products in the field and ultimately improve their reliability by predicting component failure and taking proactive action to repair/replace it. This would result in a saving of millions of dollars for their business operations. The analysis was difficult because of data being in silos: RDBMS with product and components metadata, file systems with historical sensor data, streams of real-time sensor data, etc. Solving the problem required the ability to do analysis by combining data from all these sources.

The Solution

The solution that was designed and implemented involved creating a modern data lake using Hadoop into which all the previous silos of data were integrated. Cleaned and processed data was then loaded into a traditional data

warehouse as well. We designed a solution to capture, store, process the data in Hadoop and integrate with Teradata. Parallelizable algorithms were used to process the huge volume of data that is not suitable for processing in relational databases. The new architecture delivered great performance on interactive analytics performed by the data scientists, while also providing a richer, integrated data set for aggregated analytics using the data warehouse.

Benefits for our Client

Ingesting the sensor data into provided several benefits. We were able to:

- Build a cost effective solution
- Provide great performance for interactive analytics functions
- Allow for new analyses and Machine Learning for predictive maintenance; since all data was saved in Hadoop

If you are drowning in IoT data and need a low-cost big data solution with the ability to build machine learning models for predictive maintenance, [Orzota](https://www.orzota.com) can help. Please reach out to us at <mailto:info@orzota.com>