

Solution Brief: Product Traceability

RAW

A solution that enables a European manufacturer to provide product traceability as a data service for both their internal and customers' demands for more detailed and transparent information.

Problem statement

The company has many factories with hundreds of machines from different vendors performing discrete processes to assemble products. Machines record serial numbers, information about the manufacturing processes, e.g. when and where it was made, and associated sensor data. Machine data is varied and is collected into a data lake for operational and analytic needs.

Pain points



Millions of files of data from machines across many factories



Lack of consistency of data structure, field values and formats



Broken data pipelines due to changes in data format and data quality issues



Inability to show history or integrate with enterprise data

Requirements

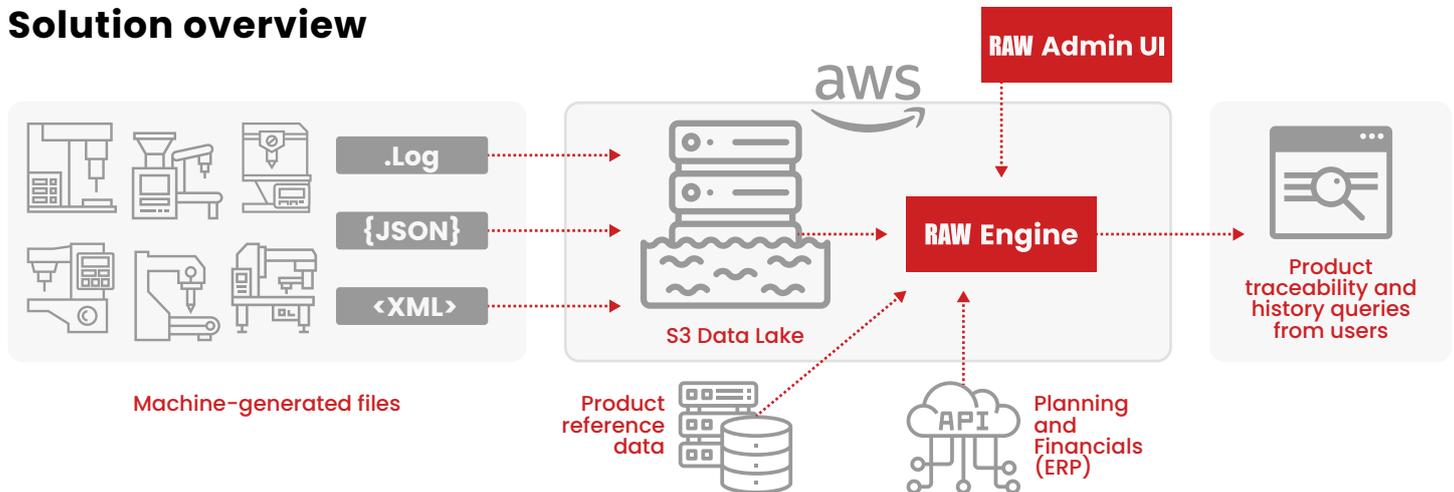
- ▶ Search via a serial number, locating a factory, machine, date/time, and other details
- ▶ Latest state of a product, and history of changes to the product as it progressed through the manufacturing chain
- ▶ Handle multiple data formats and changes to data structures over time
- ▶ Find data quality exceptions and deal with breaks without involving IT team.
- ▶ Provide interactive query access (i.e. within seconds)
- ▶ Cope with millions of files of data in JSON, XML and log formats
- ▶ Connect to other data sources outside of machine data, e.g. ERP data from APIs, reference data from relational databases – to enable the creation of holistic data products
- ▶ Present the output as a REST API in order to build Web UI's and serve the data to consuming applications.

Our Challenge

RAW

Our implementation team spent just one week and delivered to all the requirements. The RAW solution runs on AWS using our scalable architecture. **Here's how we did it:**

Solution overview



How it works: RAW Engine

1. Performs the query execution across machine files, product reference data and even ERP data via APIs
2. Executes the rules and populates backlog where rules fail
3. Serves data as a Web API for web portal
4. Caches data intelligently for high performance

How it works: RAW Admin UI

1. Define the expected structures of data ("sources") and what the user expects in data results ("targets")
2. Create and update rules that define the mappings between sources and targets
3. Manage backlog of files that don't match rules. This backlog can be browsed and re-executed by a user or the system when rules are updated in order to clear backlogs

BENEFITS OF THE SOLUTION

- ✓ Fast development time with minimal SQL code
- ✓ Flexibility to deal with new formats, new rules without needing IT
- ✓ Support for different files, formats, structures of data
- ✓ APIs are automatically created to expose the data without extra work
- ✓ Zero infrastructure to manage
- ✓ Smart caching learns from user behaviour

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