



Success Story

Hybrid cloud and real-time data processing improve customer experience

Our retail client (one of the global top 3) collects and processes data from their online store on-premises. Our client's continuous growth in customer data posed a potential threat to business growth since the remaining solution showed processing limitations. Migrating to a modern, advanced infrastructure was imperative for handling and training complex ML models, enhancing the online customer experience, and optimising sales strategies.



The Challenge

Suitable machine learning methods were crucial to managing big data and meeting business requirements. The existing batch learning approach was suitable for regularly received data. However, for our client's situation, where data was abundant and increased in frequency, scalability and volume became critical factors. Therefore, they required a solution with greater elasticity. The hybrid model proved to be the best solution. This was the time our client reached out to VirtusLab.



The solution

VirtusLab provided the client with a manageable setup for data processing, utilising Azure Machine Learning service, ETL pipelines, and feature engineering. The hybrid cloud and batch offline processing strategy enabled our client to train ML models on data from 5 million customers, with real-time adaptability to customer behaviour. Additionally, the incorporated feedback loop allowed for continuous learning, supporting the client's sales optimisation strategy by making real-time predictions based on retained and new customer behaviour data.



The results

The new hybrid platform provided the retailer with numerous benefits, including:

- 1 **Overcoming limited** computing resources and the shortcomings of an unscalable on-prem solution.
- 2 **Processing several** hundred terabytes of client data.
- 3 **Creating** a large dataset for model training.
- 5 **Accumulating real-time data** enabled faster, cost-efficient learning.
- 6 **Advanced website** customisation in real-time supported online sales.
- 7 **Adapting quickly** to changes in customer behaviour.
- 8 **Allowing the data team** to adopt the approach to other projects with manageable infrastructure from day one.



The tech stack

/ Languages

- Python
- Java

/ Database

- Hive

/ Eventing Platform

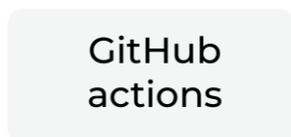
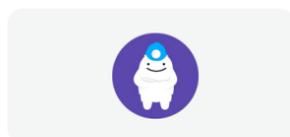
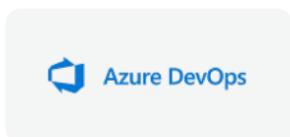
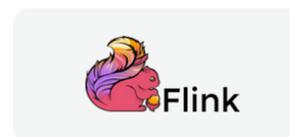
- Kafka
- Flink

/ Infrastructure

- Azure
- Azure DevOps
- Terraform
- Terragrunt
- Chef
- Github Actions

/ Modelling

- TensorFlow
- Scikit Learn
- Azure Machine Learning



About VirtusLab

At VirtusLab, we aim to lead in software technology, working consistently to enhance efficiency. Our profound commitment to research and development and a dedicated focus on emerging trends and inspirations fuels an innovative culture. This ethos precisely guides advancing our cutting-edge solutions, inviting collaboration to expand the boundaries of software technology collectively. We welcome you to be a part of this transformative journey.

[Let's connect](#)

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