

CASE STUDY

LEVERAGING DEVOPS FOR ANOMALY DETECTION

“Inawisdom’s hard and inspirational work signals the value you will continue to add.”

Bjoern Reinke
Retail Smart Director
Drax Power

INAWISDOM



Our Customer



Drax Power Station is the biggest single site renewable generator in the UK and the largest decarbonisation project in Europe. It supplies 6% of the country’s electricity needs, including 11% of its renewable power, and a host of system support services. Drax Retail includes Haven Power and Opus Energy, with a strategy that includes innovating to enhance the customer proposition and differentiating within the market by inspiring change in energy use.

Their Challenge

Across a portfolio of thousands of customers and millions of half- hourly data points, manually detecting consumption pattern changes and anomalous activity is difficult and time consuming. For example; the time taken to identify events that indicate faulty meters, safety issues, energy theft and changes of tenancy results in inefficiencies and debt recovery challenges.

As these events develop, they cause significant operational impact the longer they go undetected, often with weeks or months passing before they are spotted, resulting in significant additional cost to the business.

As the Drax business is evolving over time to a more data-driven business with data-centric behaviour and culture, which includes “to understand each individual customer and provide the best service”, data driven decision making is becoming more and more automated into their business process. This requires greater levels of automation at the engineering layer and drives further progression to a DevOps approach.

CASE STUDY



“We believe in data and insight, and your skills and approach will help us... Well done and thanks. ”

Bjoern Reinke
Retail Smart Director
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About Inawisdom

Inawisdom is an AI specialist and AWS Machine Learning Competency Partner. We enable customers to rapidly discover business differentiation from their data assets.

Our Solution

Drax engaged AI (Artificial Intelligence) and ML (Machine Learning) specialists, Inawisdom, to quickly and efficiently find a way to automatically detect errors; identifying patterns and indicators in Drax's data in order for immediate mitigating action to be taken.

Inawisdom designed the Anomaly Detection solution for Drax from the ground up to be a serverless architecture using multiple Lambda functions to process half hourly customer data and to train a complex Machine Learning model, orchestrated using an AWS StepFunction. Other services such as Athena and S3 were used to query the large volumes of customer data.

DevOps tooling and processes were used throughout delivery:

- HashiCorp Terraform was used to build the infrastructure as code, utilising shared customer modules to enable dynamic and repeatable deployments across multiple AWS accounts.
- Using Elastic Container Service cluster, Inawisdom created the “Strategic AI Engine” for Drax to simplify infrastructure and create a reusable architecture for multiple workloads. The “Strategic AI Engine” is specifically designed to serve current and future Machine Learning workloads, leveraging containers to individually tailor each delivery.
- Utilising a 3rd party code management source control and deployment platform, code changes are continuously deployed to the customers development environment.
- Inawisdom assisted the customer to document their code delivery pipeline advising Drax of best practice to ensure smooth and quality transition of Machine Learning platforms through development, end to end test environments and production.

The Outcome

Inawisdom integrated seamlessly with the clients existing team, DevOps tools and release processes, forming the link between business requirements and technical expertise across multiple departments.

Inawisdom is gradually guiding Drax towards continuous delivery by encouraging iteration on existing deliveries, fine tuning performance and AI training and further refining and improving on existing models; ultimately delivering improved business outcomes through the use of DevOps techniques.

Using DevOps and Infrastructure as code, Drax has completed over 125 development deployments.



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