



Customer success story

# Drax leverages DevOps for anomaly detection

AWS tools helped the UK energy company spot faulty meters and safety issues automatically.

## Customer challenge

Drax Power Station is the biggest single site renewable generator in the UK and Europe's largest decarbonization project. It supplies 6% of the UK's electricity needs, including 11% of its renewable power and a host of system support services. Drax Retail's strategy includes innovating to enhance the customer value proposition and differentiating within the market by inspiring changes in energy use.

As Drax evolves into a more data-driven business with a data-centric culture, the company hopes to embed more automated decision-making into its business processes. This change requires greater levels of automation at the engineering layer and drives further progression to a DevOps approach.

One key task Drax sought to automate was the detection of consumption pattern changes and anomalous activity. Identifying events such as faulty meters, safety issues and energy theft across a portfolio of thousands of customers and millions of half-hourly data points is difficult and time consuming. Weeks or months can pass before events are spotted, resulting in significant operational impact and mounting costs to the business.

## AWS + Cognizant solution

Drax engaged AI/ML specialist Inawisdom, a Cognizant company, to find a way to automate the detection of errors quickly and efficiently. The goal was to identify patterns and indicators in Drax's data so that mitigating action could be taken immediately. Our team designed the Anomaly Detection solution for Drax from the ground up. It's a serverless architecture using multiple AWS Lambda functions to process half-hourly customer data and train a complex machine learning model, orchestrated using an AWS Step Function. Other AWS 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, with shared customer modules to enable dynamic and repeatable deployments across multiple AWS accounts.
- Using Amazon ECS (Elastic Container Service) cluster, we created the Strategic AI Engine, which allows Drax to simplify its infrastructure and create a reusable architecture for multiple workloads. The engine is designed to serve current and future ML workloads, leveraging containers to individually tailor each delivery.
- A third-party code management platform continuously deploys code changes to the customer's development environment
- We worked with Drax to document its code delivery pipeline, advising the company of best practices to ensure a smooth transition of ML platforms through development, end-to-end test environments and production.



## The outcome

We integrated DevOps tools and release processes seamlessly into Drax's team, forming the key link between business requirements and technical expertise across multiple departments.

### Moving toward continuous delivery

Our team is gradually guiding Drax towards continuous delivery by encouraging iteration on existing deliveries, fine tuning performance and AI training and further refining and improving existing models. These new processes help the company ultimately deliver improved business outcomes through DevOps techniques.

### Highlight

- 125 development deployments completed using DevOps and Infrastructure as code



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