Case Study: Protix Uses AWS IoT to Build Reliable, Scalable Monitoring for Insect-Based Protein Production

About the Customer

Protix is a Dutch agritech company headquartered in Den bosch and a first of its kind insect factory in Bergen op Zoom. As a pioneer in insect-based nutrition, Protix grows black soldier fly larvae to produce sustainable protein and lipids from Plant based byproducts. These ingredients replace traditional animal feed components such as fish meal, contributing to circular agriculture and reducing environmental impact.

Customer Challenge

Protix relied on IoT-based sensors to monitor the temperature and humidity conditions in its R&D facilities. These sensors operated in a closed, vendor-locked system with a limited set of supported devices, making it difficult to expand sensor coverage, integrate new types of sensors, or access data for advanced analytics. The hardware frequently broke down, required costly maintenance, and often needed replacement at a rate of one device per month.

Because temperature and humidity are critical for the lifecycle of the black soldier fly, sensor failures created significant business risk. Resulting in production losses and setbacks to ongoing R&D efforts.

Protix needed a reliable, flexible, cloud-enabled monitoring and control system that could support any LORA Wan sensor type using AWS IoT Core, ensuring production continuity and scalability.

Partner Solution

To address these challenges, Forrict implemented a modern, serverless IoT data pipeline on AWS. The solution was first proven through a proof of concept using Dragino LoRaWAN sensors and gateways that connect directly to AWS IoT Core. This open architecture eliminates vendor lock-in and allows Protix to onboard any type of sensor in the future.

Incoming sensor data flows through AWS IoT Rules, where an AWS Lambda function decodes the payload before routing it to Amazon Timestream, a serverless time-series database. This provides scalable, low-maintenance storage for IoT telemetry. The data is then visualized in real time with Amazon Managed Grafana, enabling Protix engineers and researchers to monitor dashboards and analyze historical trends.

The system currently supports two sensor types, with more planned for future rollout. The architecture is designed for easy extension, allowing new sensors to be added without re-architecting the pipeline.

Forrict manages the end-to-end solution on Protix's behalf, ensuring operational continuity and minimal maintenance overhead. Protix retains the ability to make minor adjustments, such as onboarding new sensors, while Forrict provides ongoing monitoring, updates, and optimization.

By leveraging serverless AWS services, the system is nearly maintenance-free and enables Protix to retain up to one year of sensor data for analysis. Future enhancements such as single sign-on (SSO) integration and automated alerts/notifications are already under discussion.

Results and Benefits

The AWS-based solution has transformed Protix's production monitoring, delivering both operational stability and business value.

- Sensor uptime increased from 1 month to 5–7 years, thanks to long-lasting LoRaWAN devices with monitored battery status.
  Sensor onboarding time dropped to 15 minutes, enabling rapid expansion across facilities.
- 50% lower measurement costs, Sensors now allow for multiple measurements per device, reducing per-measurement costs compared to the legacy system.
- Centralized dashboards provide visibility across from everywhere
- Historical data retention of one year supports both production analysis and R&D.
- Reduced downtime risk through proactive maintenance and reliable monitoring.

Together, these benefits give Protix the operational confidence, while supporting sustainability goals and improving data-driven decision-making.

About the Partner

Forrict is an AWS Select Consulting Partner specializing in designing and building cloud-native solutions for startups and small to mid-sized businesses. With a focus on agility and simplicity, Forrict helps customers move fast and innovate without unnecessary bureaucracy. The company has deep expertise across AWS services and holds the AWS CloudFormation Specialization, demonstrating its proficiency in infrastructure as code and automation. Forrict's lean, hands-on approach enables customers to achieve business value quickly while ensuring scalable, reliable cloud foundations.