IoT Condition Monitoring
Case Study

Executive Summary

Martin Engineering provides connected monitoring solutions for their products, which have already been rolled out in North America. The challenge for this project was to roll out the same solution to the EMEAI region and the rest of the world. They approached AWS and Advanced Consulting Partner Green Custard and IoT connectivity solutions specialist Eseye to deliver the solution. The solution now enables them to deploy a new region within 30 minutes and complete testing within a day, whilst complying with any local privacy requirements.

The Challenge

Challenge 1

Martin Engineering had a time-to-market challenge, wanting to quickly provide support for their solutions outside of North America.

Challenge 2

Delay in roll out would have impacted their brand and its promise of global operation and local availability irrespective of the location of their customers operation.

Challenge 3

Martin Engineering required a single global connectivity solution to simplify the management and onboarding of the solution when deployed with customers.

Why Industrial IoT on AWS?

The AWS Industrial Machine Connectivity solution makes it easy for customers to unlock data from their legacy PLC systems, visualize operational technology data in near real time, and perform deeper analytics to optimize operations, improve productivity, and asset availability.

About Martin Engineering

Martin Engineering is a global leader in bulk materials handling solutions for mining, quarrying and other major processing industries. Founded in Illinois, USA in 1944, today the company operates across six continents, supplying world-class components such as conveyor belt cleaners, air cannons and dust control products. Renowned for its 'problem-solved' approach, Martin Engineering helps its customers to achieve the cleanest, safest most efficient production possible.

" Partnership with Green Custard and Eseye made it possible for Martin Engineering to localize the solution and get it ready for fast market roll out internationally. "

- Mark Slack, Global Product Manager - Transformational Growth, Martin Engineering

Why Green Custard

Green Custard, established in 2009 and based in the tech hub of Cambridge, has a strong team of software developers and architects, with more than 85% AWS accredited. With our unrelenting focus on customer outcomes, as well as AWS architecture, IoT, edge devices, and best practices, we were uniquely positioned to take on the challenge.

Martin Engineering selected Green Custard due to our unique combination of customer obsession, knowledge of IoT, and the fact we are an AWS CloudFormation Delivery Partner, and Eseye due to their global connectivity reach and experience of IoT connectivity solutions.

The Solution

Martin Engineering had a challenge of time to market and wanted to bring their new innovative solution to the EMEAI region and the rest of the world. Time was not on their side and they were looking for a team of experts who could understand their business challenge, their existing software and solutions, and enable deployment to new regions within their timescales.

Making use of our expertise in AWS IoT services, such as AWS IoT Core, as well as knowledge from our Service Delivery for CloudFormation, we reviewed the existing solution, looking at both code and security and AWS best practices to ensure a robust, secure solution for Martin Engineering.

From our analysis, we were able to advise on a solution using AWS CloudFormation to make deployment to a new AWS region possible in minutes. Using CloudFormation simplified, improved and brought consistency to the deployment, and we developed specific deployment pipelines for code and infrastructure using AWS CodePipeline and other services. AWS IoT Core was used for data ingestion and IoT rules used in conjunction with AWS Lambda and other compute and storage services provided the basis for the solution. In addition, we provided advice on changes to existing mobile apps and gateways to support new regions and ensure reliability and security for Martin Engineering's customers.

Eseye's extensive technical onboarding process resulted in each device being configured, tested and approved for deployment anywhere in the world, giving Martin Engineering complete peace of mind on device connectivity reliability before moving into the critical production and deployment phases of the project.

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We needed a solution that could be rapidly implemented, globally scaled, and easily adapted for future innovations. On top of that we have a robust design that's aligned with the latest best practices and is highly usable which is critical to successful adoption

– Paul Harrison, Chief Technology Officer, Martin Engineering
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> "If we can create a product that can manage variables that affect real performance, we can then deliver a return on our customer's original investment.
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> – Robert Whetstone, Area Vice President - Europe, Middle East, Africa, India (EMEAI), Martin Engineering "

Results and Benefits

Martin Engineering provides cleaner, safer, more productive material handling since 1944. They are constantly introducing new and innovative solutions designed to make the handling of bulk material safer, cleaner, and more profitable. Time to market and customer service is a No 1 priority. The company is obsessed with relentless pursuit of quality and innovation and serving the customer across their entire markets.

Martin's N2® system for conveyor belt cleaners reduces safety risk, saves time and effort, and improves budgeting and inventory control by sending actionable performance data direct to a mobile device via an easy-to-use app or to a desktop dashboard. It's like a fitness tracker for belt cleaners. It was essential for Martin to roll out their N2 solution globally.

The result of working with AWS, Green Custard and Eseye was on time delivery and ensuring the availability of the N2 product globally. Together we've developed a fully automated, seamlessly integrated and instantly secure cloud-based system that delivers super-reliable connectivity to allow maintenance managers to keep on top of belt cleaner performance anytime, anywhere without the need for physical inspection.

Eseye's multi-IMSI eSIM and Connectivity Management technology ensured power on, zero-touch near 100% global connectivity from device to AWS IoT Core - that was both fully automated and instantly secure, reducing product complexity and delivering needed global reach.

Martin Engineering has successfully deployed and tested their solution in 5 additional regions, with more planned, without increasing their operational support overhead. Deployments were achieved in minutes, and initial end to end testing completed within a day.

Next Steps

Green Custard and Eseye have enabled Martin Engineering to address the real pain points in their customers' bulk material handling solutions. It has delivered an affordable and scalable solution which can deliver relevant and accurate actionable insights to their customers. We continue to work with Martin to further develop their solutions and drive the next level of innovation within their business.

Please get in touch if you are interested in learning how Green Custard can support your Industrial Connectivity journey on AWS, either for cost reduction in manufacturing through services like predictive maintenance or OEE measurement, or to support your industrial assets in the field to provide improved products and services to your customers, providing your business with additional revenue opportunities. We also recommend Eseye global connectivity solutions to our customers who need global reach, and simplified provisioning of industrial assets.

Benefits

Global Rollout

IoT deployments using CloudFormation can scale trivially when roll out across the globe is needed.

Launch New Services

Connectivity of industrial assets support the launch of new customer services and revenue opportunities.

Reduce Costs

Insights from industrial equipment can lead to direct actionable information to save you or your customers money.

Global Connectivity

Eseye's multi-IMSI eSIM and Connectivity Management solution ensures seamless global connectivity and provisioning.

About Green Custard

Green Custard is an AWS Advanced Consulting partner based in the heart of the Cambridge, UK tech hub. It has a proven track record of delivering highly customized IoT solutions for its clients covering a wide range of industries such as manufacturing & industrial, energy & utilities, healthcare & life sciences and covering customers of different sizes from small businesses to multi nationals and the public sector. Green Custard has worked with customers in the UK and globally, including the US and EU. Green Custard is a Service Delivery partner for CloudFormation and part of the Public Sector Partner program.