Helping Thule better understand and gain insights into their environmental footprint

Thule wanted to find a way to better understand its environmental footprint related to its manufacturing process, and gain insights into how its manufacturing process operates in terms of energy consumption.

The challenge was to integrate this data into their current IIoT architecture in AWS, visualize it and make the data available in the Office 365 applications. Use Power BI for historical analysis, visualization of data, and creating reports in various programs.

Examining the task

Thule's system is built using existing sensors and hubs from third-party provider. The power sensors are Aeotec Smart Monitor and hubs are based on Raspberry PI with Homeassistant and Node-Red as platforms. A system consisting of 6 hubs and 60 power sensors located at the factory site, bought from a third party, which also provided data collection and reporting.

A Proof of Cloud Concept (PoCC) was set up to investigate if it is possible to replace the third-party provider service and software with standard SW (Homeassistant + Node Red) and utilize AWS-based data collection in Thule's existing cloud service.

The outcome of the PoCC was positive, which made it technically possible.

Setting up the solution

By configuring our Edge Gateways to communicate with AWS IoT Core through MQTT, it was possible for us to send our collected data from our sensors to AWS IoT Core through edge technology.

The data that was collected by IoT Core was sent to two services. First to our Asset representations in AWS IoT SiteWise, where the data is modeled to digital representations of physical units.

Parallelly we host a Linux-based EC2 in AWS, where we've installed and run Grafana, an AWS SiteWise plugin that makes it possible to easily integrate data from specifically AWS IoT Site-Wise.

AWS S3 and the data is then available to Power BI through a connector between Athena and Microsoft.

Company:
Thule

Industry:
Consumer goods

Purpose:
"Active Life, Simplified"

Main Markets:
Worldwide

Employees:
2400

Website:
www.thule.com

About Thule:
Thule was founded in 1942 by the Thulin family in Hillerstorp, southern Sweden. Today they have 2400 employees worldwide and are global market leaders in a number of product categories, such as roof racks, roof boxes, bike racks used on a car, camera bags, as well as multisport- and bicycle trailers. Their business concept is to offer high-quality products with smart features and a sustainable design that make it easy for people across the globe to live an active life.

From IoT Core the data is also transferred to AWS IoT Analytics where it's collected in a cache and every 12th hour pushed into S3 Bucket for cheaper storage.

The data in AWS S3 is crawled with the help of AWS Glue to create a structured SQL table and representation of the unstructured data.

AWS Athena uses Glue to create SQL calls on the data placed in AWS S3 and the data is then available to Power BI through a connector between Athena and Microsoft.

Reading the data

Thule can now read and see their energy metrics in an open-source customizable to their needs dashboard in real-time. They can access stored data through Power BI and other Office 365 applications to get a better understanding of their environmental footprint related to how their manufacturing process operates in terms of energy consumption at all times.

With the benefit of getting a stable basis for future projects related to the optimization, or analysis of energy consumption and the manufacturing process.

ELASTIC MOVE

About Elastic Move:
Elastic Move is a Swedish company founded in 2009 with a focus on migrating, modernizing, designing, and implementing cloud solutions for large and medium businesses. We take our role of being a Trusted Advisor very seriously and make sure that what we're doing has long-term benefits for the customer, even if it means we're losing a project in the short term. Establishing an honest and strong foundation, on which we can build a trusting relationship with the customer from the bottom up. We also have extensive experience with AWS and have been a trusted, advanced consulting partner for over a decade, with a team of engineers who are all 100% AWS certified, to make sure you're always in good hands.

Website:
www.elasticmove.com