Smart Energy: Integrating electrical systems easily – accelerating the path towards sustainability

Challenges

Continuous Data Ingestion and Monitoring of Asset Performance & Status

Seamless OT/IT systems integration, an essential aspect of digital transformation, requires connecting electrical systems easily. Ensuring a short time to market, the offering targets companies that build solutions leveraging data from field assets, i.e. smart electrical infrastructure components that are pervasive in the energy management of buildings, factories and critical infrastructure. Historical and real-time data from sensors, field buses, PLC’s and logs are the basis for applying analytics and business logic on a cloud level ranging from monitoring CO2 emission savings, track utility power consumption vs. renewable self generation, document savings due to solar power generation, and many more applications. At the time time data from the same assets is required to ensure highest availability and optimum performance.

The Eurotech Solution

Connected, Software Defined Assets with Logging

IoT-based solutions collect, compute and communicate constantly vital data from assets in the field to the cloud. Eurotech’s RaliaGATE IoT Gateways collect and aggregate data from as different sources as field buses (e.g. Modbus, OPC-UA, DNP3, IEC 60870, M-bus, IEC 61850, OCPP 1.6, OSLP, DLMS/COSEM, IEC 62056-21, C37.118, LoRa, MQTT, BLE, etc.), smart electrification systems and sensors. The established communication channels are bi-directional, also control information can be sent to the assets in the field. Digital twins of the field assets, APIs and no-code programming of the IoT Gateway ensure efficient application development. Powerful health monitoring and advanced logging, enabled by an IoT Gateway middleware contribute significantly to device operation and compliance monitoring. Seamless integration with the AWS services including AWS IoT Core and AWS IoT Greengrass makes it possible to store and process data efficiently in the cloud. That data enriched with information coming form additional sources (e.g. weather data, maps, traffic information, etc.) forms the basis for business decisions on all levels.

Benefits

Substantially improved operational excellence, with further positive safety and customer satisfaction effects.

Optimized Asset & Grid Management

Optimize asset service schedules based on actual real-world data. Predict and ensure that services are available when and where needed

Situational Awareness

Being able to react in real-time on asset and infrastructure status and performance values.

Improved Compliance Data

Ensure that advanced logging is providing vital data for detailed audit trails as part of continuously ensuring service quality and compliance.

Additional Applications: Predictive Maintenance

The solution is extendable and provides all the essential building blocks for effectively leveraging real-time data from the field, including predictive maintenance.
Eurotech on AWS

Eurotech is a multinational company that designs, develops and supplies ruggedized Edge Computers and Internet of Things (IoT) solutions to system integrators and enterprises. The portfolio ranges from IoT software stacks to Edge Gateways and Edge Servers to High Performance Edge Computers and Edge AI Systems. Eurotech complements the AWS offerings by enabling customers with application optimized Edge / IoT building blocks for demanding verticals like manufacturing, transportation, agriculture, energy, utilities and medical. Eurotech is part of a global AWS ecosystem that allows to create and leverage “best in class” solutions for the Industrial IoT, without compromising operational technology (OT) requirements.

Features

Effective Development and Reduced Time-to-Market

is ensured by a well integrated and optimized building blocks and a powerful low code / no code development solution. It consists of proven Eurotech application optimized hardware (Gateways, Edge Computers) and a software stack, that includes an optimized, managed Linux operating system and a powerful IoT device middleware, Everyware Software Framework (ESF). ESF comes with a wide range of supported field protocols, addressing the development and connectivity challenges encountered in utilities and smart grids applications. With the AWS IoT Core SDK and AWS IoT Greengrass readily integrated, the seamless integration with AWS services is ensured.

Clear Focus on Low TCO and Risk Mitigation

A sound edge node & gateway software architecture offers solutions to address major aspects that contribute to the total ownership costs on an IoT solution, like device software lifecycle management, security, health monitoring and logging. Device abstraction on a middleware level does address challenges associated with changing hardware requirements and end of life of components. Products are designed to meet demanding security certifications like PSA Level 1 and IEC & 2443-4-2. These risk aspects are further mitigated by long product life support, extended warranty options and a broad professional services offering. The seamless integration with AWS services allows customers and system integrators to leverage the benefits of AWS services without compromising requirements and best practice from an operational technologies perspective.

Case Study:

Connected Electrical Systems

ABB Electrification

Challenges

ABB, a global leader in Energy Management & Infrastructure solutions is providing access to vital real-time and historical data from the field for applications driving sustainability but also operational effectiveness and situational awareness. At the core is the introduction of an extendible global standard IoT gateway.

Solution

Ruggedized IIoT Gateways (ReliaGATE 10-14) to retrofit energy assets (ABB Electrification assets pre-configured). Required were highest levels of monitoring, logging, security and system integrity. EC in customer AWS account and Gateway with AWS IoT Core and AWS IoT Greengrass connector to leverage AWS services.

Results

Data is made available to the customer on the AWS cloud side for analytics, business logic and visualization by different means, including a seamless integration with AWS IoT Services. Improved operational efficiency: liberation of deployment time (~50%). This is ensured by ready-made (pre-configured and tested) connectivity to the AWS IoT cloud.

Get started with Eurotech solutions on AWS

Visit eurotech.com to learn more about Eurotech’s Offering for AWS related solutions. Visit AWS Certified Device Catalog for Information on ReliaGATE IoT Gateways.