SERVICE FEATURE

Assessing Data to Inform Real-time Decisions

Moving at the speed of business is challenging enough without having all relevant information available. Internet of Things (IoT) systems help energy and utility organizations understand the current condition of their assets in the field and provide the opportunity to predict future conditions, resulting in quicker response times to emergencies and the agility to react to market conditions.

Predict, Respond, Improve

Energy organizations are focused on modernizing operations to improve reliability and meet increased energy consumption levels. IoT products can provide mechanisms to automate or otherwise improve energy and utility firms in the following ways:

Predictive maintenance

- Power generation to respond to fluctuating energy consumption levels.
- Heat and vibration detection to inform maintenance decisions.
- Reduced downtime for costly system repairs.

Safety

- Gas detection to prevent unwanted leaks.
- Geofencing equipment to set up virtual boundaries.
- Anomoly detection for examination and response, as appropriate.

Situational awareness

- Smart grids to understand and predict usage patterns in a geographic region.
- Outage mapping for the latest information.

Industry Experience

IoT vendors have entered the energy and utility market but lack the experience required to deliver solutions that can survive in the field or provide meaningful insights to our industry. A partner with prior experience building and maintaining energy and utility assets can be the missing link to the custom solution your organization needs.

Vendor Agnostic

The IoT market is saturated with solutions that require utilities to purchase vendor software, such as OSIsoft or Petasense, or to run inside a vendor's cloud. A thirdparty consulting partner can identify and implement a solution that can scale, both in terms of cost and performance, whether the system

is managing five or hundreds of thousands of sensors. An outside team can also help prevent vendor lock-in, a singular vendor that controls and manages all data and makes it difficult to mature or change data sets later. Instead, the team approaches the scenario with an agnostic perspective to help a client plan, design, build or manage an IoT deployment with deep industry knowledge, rather than a one-sided vendor perspective.

IoT Framework

IoT implementations are multifaceted, requiring an understanding of the physical equipment that sensors will be deployed on, communication channels and cloud data warehouse and analytics capabilities. To fully gain the advantages of IoT, in-depth, practical experience in each aspect of the implementation process is required. At a deeper level, considerations for implementing an IoT Framework include:

Analytics

Some analytics solutions exist with broad metrics, not taking into account the specific challenges an organization may face. An analytics solution should be adaptable and tailored to the organization's unique assets and operating environment.

Connectivity

Energy operations and organizations are generally spread across a broad geography. While many options exist, from long-term evolution (LTE) to satellite to wireless technologies, transferring data from a sensor to an analysis team needs to be done quickly and securely.

Data warehousing

The velocity, scale and diverse structure of data coming from sensor fleets often creates the need to build a data warehouse with the ability to rapidly ingest and grow elastically as data is received.

Presentation

Analytics involve in-depth computer and data science experience, which must be distilled into actionable insights for consumption by business leaders for the information to be valuable. At the end of the IoT value chain, a presentation layer exists that is relatively simple to build and is then deployable inside enterprise systems.

Security and governance

From sensors in remote locations to communication and storage platforms, the entirety of the IoT framework must be designed and built with modern security practices in mind. Security measures prevent data inaccuracies and protect information so that only those inside the organization that need it can access it.

Sensor management

Sensors have evolved into smart, microcomputer-based systems and require robust management and security features. Sensor fleets from various facilities across all operating regions can be onboarded, managed and monitored centrally — and this requires a vendor-agnostic solution.

Sensor selection

Sensors are often deployed in harsh environments or are specialized for industry or equipment. Having a partner with deep industry knowledge can help guarantee sensor operability over the life of the asset.

With unique challenges to overcome, every organization needs a solution custom fit to its operational needs. Implementing IoT products can be a complicated process for a team lacking the experience necessary for successful system integration. A knowledgeable team can help simplify the process and provide the services to assist with IoT product implementation.

A Complex Industry

IoT isn't fundamentally new to the technology industry as supervisory control and data acquisition (SCADA) and industrial control systems (ICS) have remotely monitored or controlled devices for decades. However, recent improvements in the availability of network resources, along with the increase of cloud computing resources and declining cost of sensors, have allowed energy and utility organizations to collect more data faster than ever before. An experienced team can provide an outside perspective and the services needed to sort through data for insights into making strategic decisions for an organization.

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