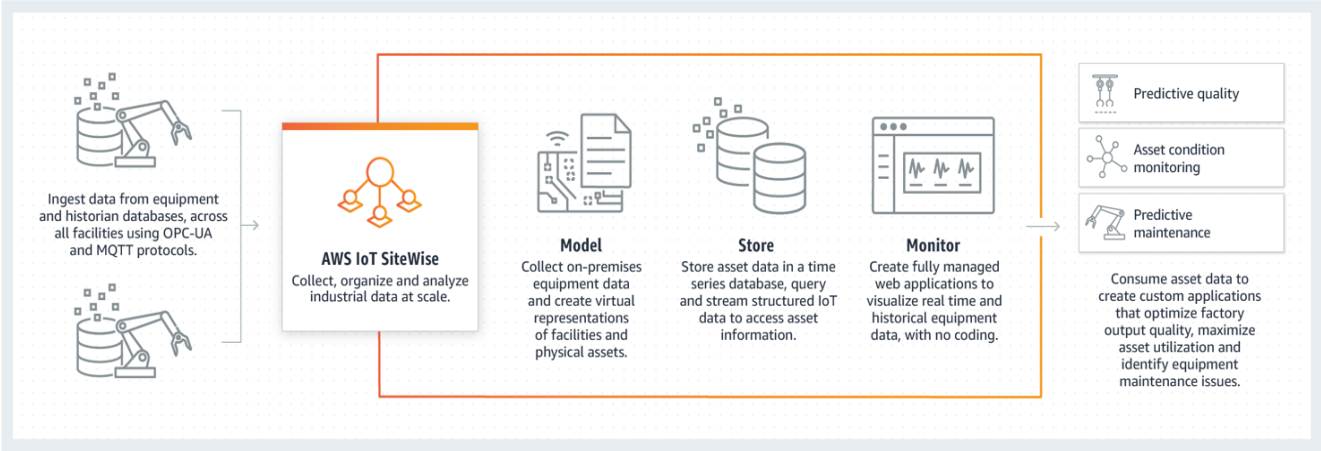
Sparkplug SiteWise Bridge

Sparkplug SiteWise Bridge is an Amzon Machine Image (AMI) application that rapidly connects OT data from Industrial Operations to AWS IoT SiteWise with minimal configuration and zero coding. The solution provides IT standard data models and a time series database for quick and simple access for analytics such as ML and PM. With the use of Inductive Automation's Ignition platform and Cirrus Link MQTT modules based on MQTT Sparkplug protocol, OT data from Industrial applications is delivered to AWS IoT SiteWise. Simply point the Cirrus Link module at the AWS IoT service and the asset model, properties and hierarchy are 100% self-discovered by SiteWise. Then real time data is securely and efficiently delivered directly to the SiteWise time series database for Big Data Analytics. This solution provides the simplest data ingest for AWS SiteWise delivering the Digital Transformation organizations are striving to achieve.

- Automatically Discovery of Assets
- Automatically Creates Asset model
- Automatically Defines Asset properties
- Automatically Defines Asset hierarchy
- Efficiently pushes Tag Data into SiteWise Time Series Database
- **Requires No Coding, just a little Configuration!**

The Sparkplug SiteWise Bridge operates on the MQTT Sparkplug open standard protocol that provides the contextual information on the OT data for consumption into AWS IOT SiteWise using MQTT. The Sparkplug specification offers the auto-discovery of assets for asset-modeling and real-time OT data consumption.



What is AWS IoT SiteWise? it is a fully managed AWS IoT service that you can use to collect, organize, and analyze data from industrial equipment at scale. AWS IoT SiteWise enables data to be collected from plant floor sensors, equipment, or a local on-premises gateway. The data ingested and modeled in AWS IoT SiteWise is stored in a scalable and time-optimized internal data store. Once data is stored in AWS IoT SiteWise in a consistent model it can be quired to build downstream IoT applications.

There are a lot of challenges in bridging the OT - IT gap to make use of IT services in the industrial operating environments. To understand the difficulty of this process it is important to first understand the difference between OT data and IT data requirements for enabling Big Data services such as Predictive Maintenance or Machine Learning.

OT Data Consists of

- Proprietary Protocols
- Multiple Data Formats
- No Contextual Information
- Designed for Operations
- Poll / Response Date Retrieval
- Directly Coupled to Applications
- Isolated Networks

IT Data Needs

- Data Objects/Modeling
- Standard Data Formats
- Contextual Information
- Decoupled to Enterprise
- Publish / Subscribe Methodology
- Easy to Integrate
- Secure

The Ignition platform enabled with the Cirrus Link MQTT Transmission module provides an easily deployable solution. As shown in the diagram below the solution connects the OT data sources at the Edge and converts into IT defined data as specified by Eclipse TAHU Open MQTT standard specification called Sparkplug.

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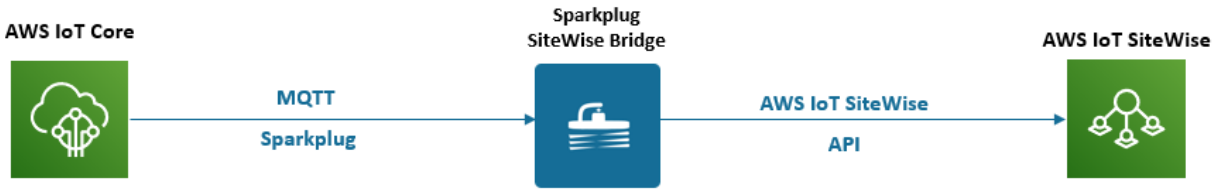
The diagram below shows how the application called “Sparkplug SiteWise Bridge” receives MQTT Sparkplug data from an MQTT Broker, either AWS IoT Core or any 3.1.1 compliant Broker and sends it to SiteWise using the API’s. This application developed by Cirrus Link is available to purchase via the AWS Marketplace.



The Sparkplug SiteWise Bridge Offers:

- Service consuming MQTT Sparkplug Data (Asset Model and Properties)
- Auto-Creates Asset Model
- Auto-Discovers Assets
- Auto-Defines the Asset Hierarchy
- Pushes Data into AWS SiteWise Time Series DB – Property Values and Time Stamps

There are many ways the data can be used inside AWS Cloud, described below are two common use cases for Big Data.

The first using an Ignition MQTT only approach where both the Asset Models and Real-Time data is ingested through MQTT as shown in the diagram below.