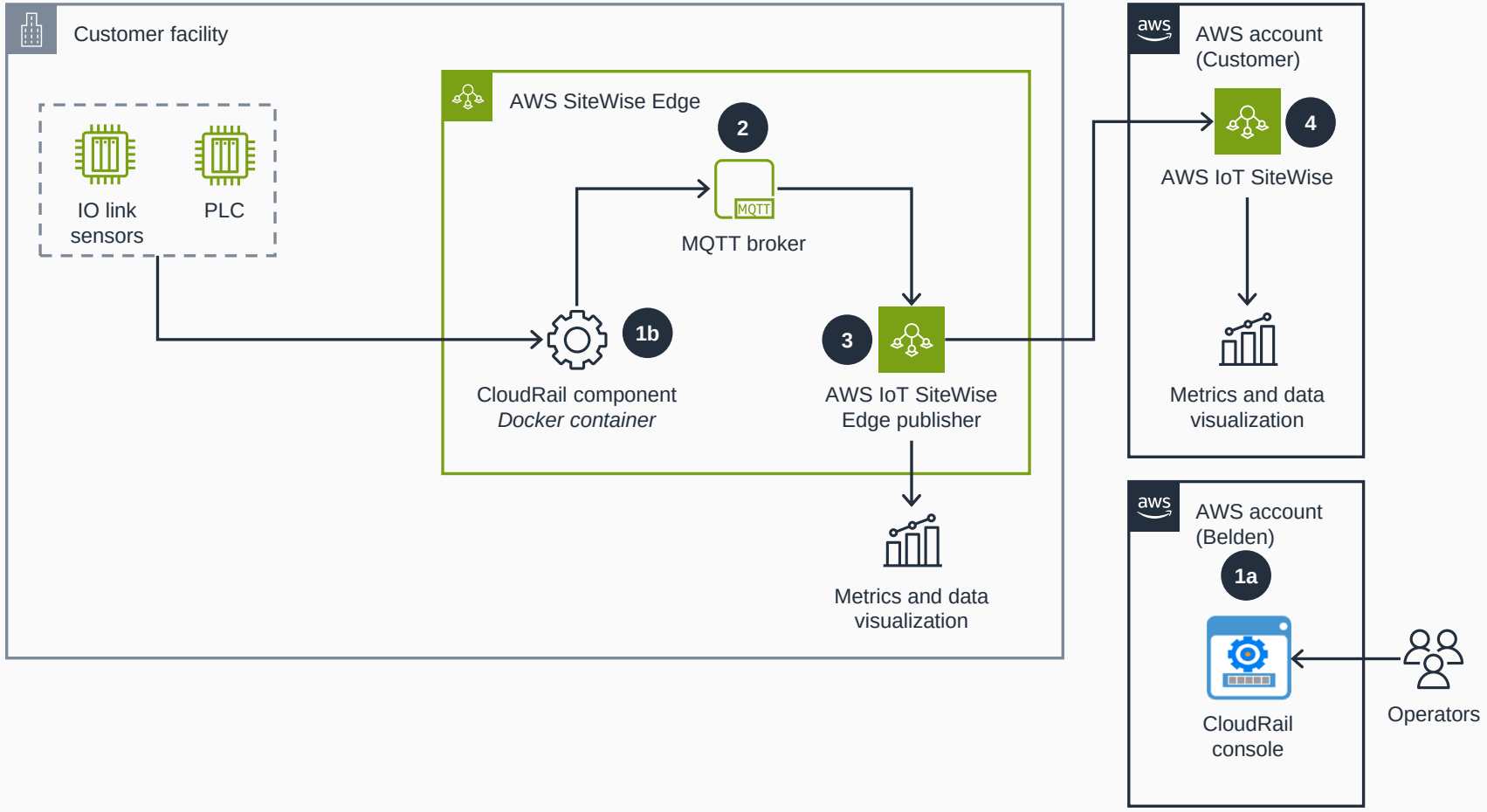
Guidance for Integrating an Industrial Data Fabric with Belden CloudRail on AWS

This architecture diagram shows how to ingest near real-time data at scale from edge data sources into an IDF on AWS using CloudRail.



1a CloudRail streamlines industrial data acquisition, preprocessing it locally before seamless cloud transmission. Through the CloudRail console, users can add CloudRail software as a data source on their **AWS IoT SiteWise Edge** gateway.

1b Users install CloudRail software through the CloudRail component (Docker container). This allows users to configure the protocols, desired data flows, and data conditioning. **AWS IoT SiteWise Edge** deploys the CloudRail component with **AWS IoT SiteWise Edge** components.

2 After the configurations are deployed, the sensor data flows seamlessly to **AWS IoT SiteWise Edge** for local monitoring, storage, and access at the edge. Sensors need to be on a network reachable by **AWS IoT SiteWise Edge** gateway with the CloudRail component installed. The CloudRail component collects data from IO-Link sensors and programmable logic controllers (PLCs), and the data is published as MQTT messages to the MQTT broker running on **AWS IoT SiteWise Edge**.

3 The **AWS IoT SiteWise Edge** publisher component on **AWS IoT SiteWise Edge** gateway listens to all MQTT topics and then securely publishes data to **AWS IoT SiteWise** in the cloud. In case of network disruption, it also addresses local buffering, storing, and forwarding of the event to **AWS IoT SiteWise**. Users can create local applications using MQTT connectivity to visualize and monitor in real time at the edge to support decision making on the factory floor.

4 Published data gets correlated with corresponding assets and is populated at **AWS IoT SiteWise** in the cloud, where uses can visualize it with **AWS IoT SiteWise** Monitor or **Amazon Managed Grafana**.

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AWS Reference Architecture