aws INNOVATE
DATA EDITION

23 August, 2022

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Achieve real-time insights at edge and cloud with AWS IoT SiteWise

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Agenda

- Industrial digital transformation

- Customer challenges

- Common machine data use case

- AWS IoT SiteWise

- Reference architecture + demo

- Resources

Data drives industrial transformation

Customer challenges

Lack of visibility into operations

Manual operations, batch reporting Poor quality and Reactive approach

Data Management & Lifecycle Challenges

Combining data from all production line. Interoperability; Senstive data;

Data Analytics

Real time Model for anomaly detection, Predictive maintenance, Process optimization

Data Protection & Security

Connecting data from different source system (Machine. PLCs, MES, SCADA) across multi plant scenarios.

Common machine data use cases

Operational Efficiency

- Near real-time Visibility
- Improve OEE/KPIs
- Root Cause Analysis
- Compare Line/Plant performance
- Digital twin modeling

Predictive Maintenance

- Condition Monitoring of Assets
- Failure Prediction/Prevention
- Reduce unplanned downtime (MTBF)
- Prescriptive maintenance
- Extend life of assets

Quality Management

- Anomaly detection/alarms
- Defect capture in-process or at end of the line
- Automated quality inspections
- Reduce scrap/warranty claims

Energy Optimization

- Electricity usage optimization
- Water consumption improvement
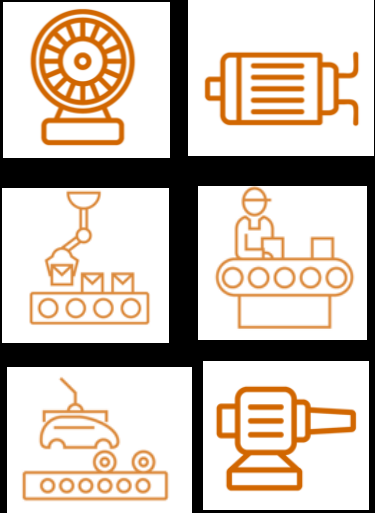- Process optimization
- Sustainability goals

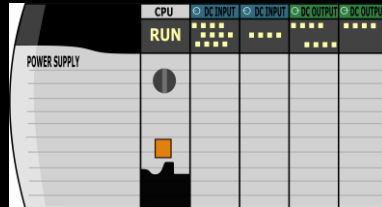OEE = Overall Equipment Efficiency

MTBF = Mean Time Between Failure

Machine sensor data & PLC's

Factory Devices

PLC's, Controllers

CPU — RUN — DC INPUT — DC INPUT — DC OUTPUT — DC OUTPUT
POWER SUPPLY

OPC UA

aws internet of things

Real Time Data Analytics

Factory - Enterprise level strategy

Enterprise level visibility

Model Assets Store Data Visualize (Live and Historical Data)

Business outcomes
(IoT, ML/AI Solutions)

Maintenance Costs   Asset Availability
Scrap material   Product Quality
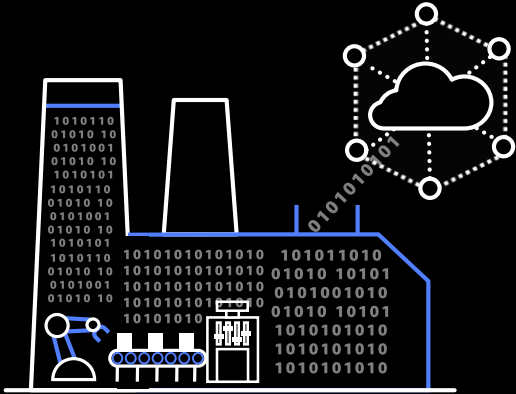Loss of production   Knowledge of your Assets

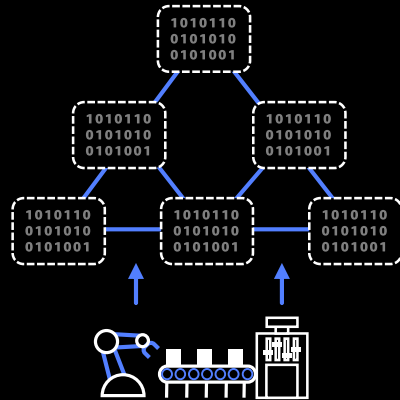## Division and Plant level visibility
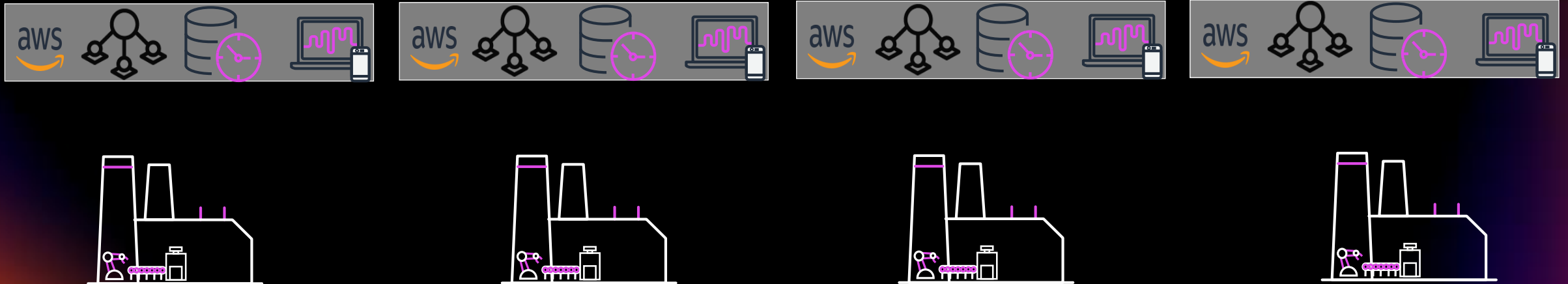
AWS IoT SiteWise

AWS IoT SiteWise collects data from the plant floor with a local gateway, structures and labels that data, and generates real-time KPIs and metrics to make better data-driven decisions
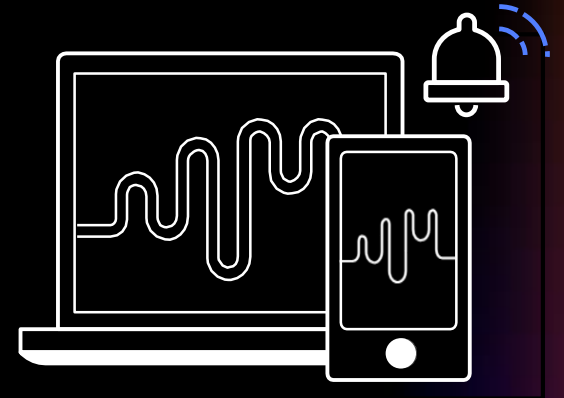

Ingest equipment data into AWS in minutes and process data locally

Structure data with asset models to represent industrial operations

Store data and compute performance metrics for your equipment and processes with asset models
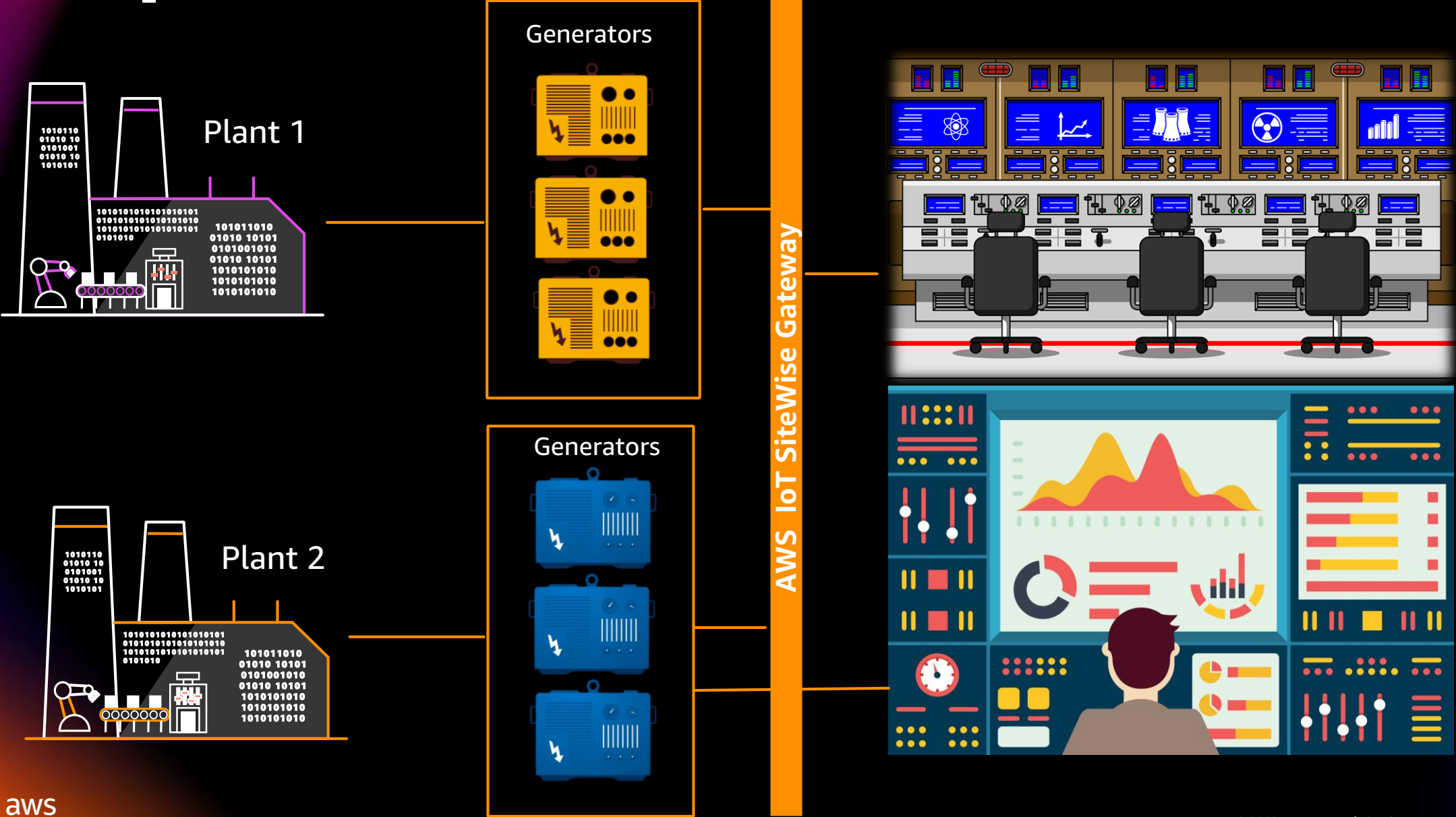
Create and share dashboards to visualize live and historical equipment data; set up alarms to alert operations teams
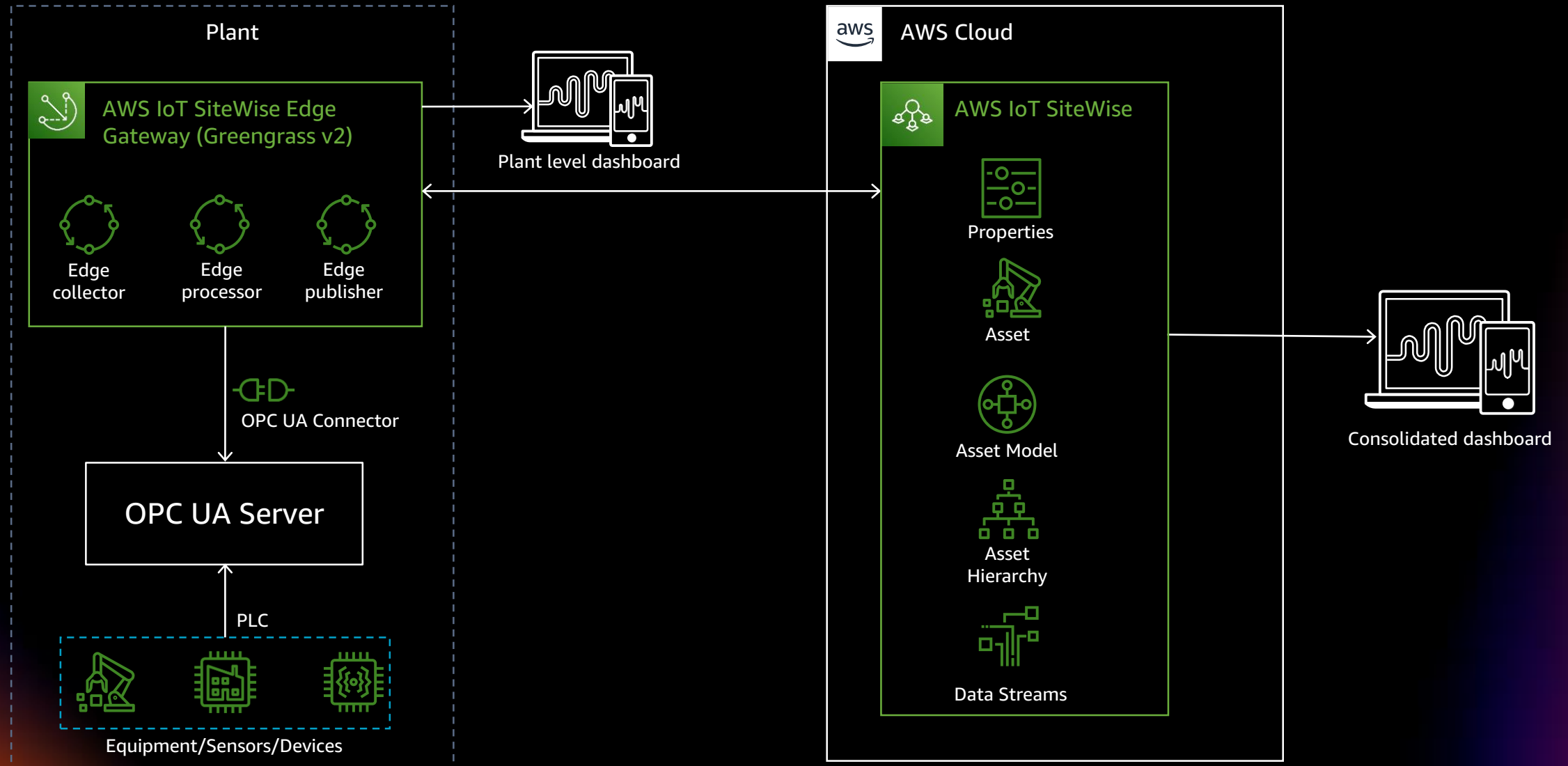
AWS IoT SiteWise Edge

- Run on local hardware

- Local processing before sending to AWS

- Industrial protocol support

- Can work with intermittent connectivity

- Local application integration

- Local analytics & dashboards

Sample use case

Plant 1

Generators

Plant 2

Generators

AWS IoT SiteWise Gateway

Reference architecture

Plant

AWS IoT SiteWise Edge Gateway (Greengrass v2)

Edge collector • Edge processor • Edge publisher

OPC UA Connector

OPC UA Server

PLC

Equipment/Sensors/Devices

Plant level dashboard

AWS Cloud

AWS IoT SiteWise

- Properties
- Asset
- Asset Model
- Asset Hierarchy
- Data Streams

Consolidated dashboard

Demo

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Recap

- Accelerate industrial digital transformation

- Customer challenges & machine data

- AWS IoT SiteWise

- Use cases & reference architecture

- Demo

Resources

- AWS IoT SiteWise user guide
  go.aws/3EFmM82

- AWS IoT SiteWise demo
  [go.aws/3GR4yCl](go.aws/3GR4yCl)

- AWS IoT SiteWise workshop
  iot-sitewise.workshop.aws/en/

- Node OPC UA
  node-opcua

Visit the AWS Data resource hub

A modern data strategy can help you manage, act on, and react to your data so you can make better decisions, respond faster, and uncover new opportunities. Dive deeper with these resources today.

- Harness data to reinvent your organization
- In unpredictable times, a data strategy is key
- Make data a strategic asset
- Rewiring your culture to be data-driven
- Put your data to work with a modern analytics approach
- … and more!

https://tinyurl.com/data-hub-aws

Visit resource hub
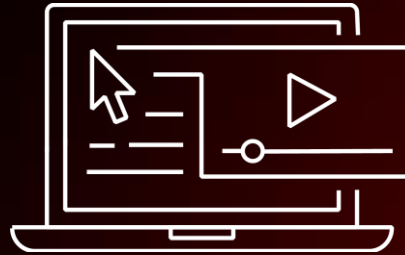
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AWS Data & Analytics FREE Training Resources

Discover how to harness data, one of the world's most valuable resources, and innovate at scale.

https://bit.ly/3Ntlhy7

AWS Data Analytics Learning Plan

This learning plan expose you to the fastest way to get answers from all your data to all your users. It can also help prepare you for the AWS Certified Data Analytics - Specialty certification exam.

https://bit.ly/3wBVjD1

AWS Certified Data Analytics - Specialty

Earning AWS Certified Data Analytics – Specialty validates expertise in using AWS data lakes and analytics services.

https://go.aws/3lwF0RR

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Thank you!