Data driven Asset Operations

Distribution Utility Meet

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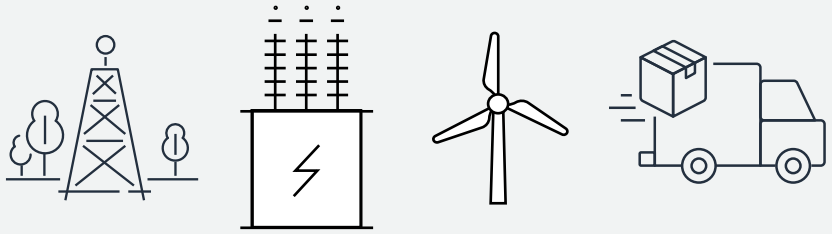
Asset Operations – What, Where, When, How



- Meters, Transformers of different rating
- Linear assets, Breakers, capacitors
- EV charging stations, Rooftop solar, Energy storage/ batteries

What

What assets do I have – installed, spare, how many, who's the manufacturer, warranty period, maintenance schedule

- Maintaining an asset register

Where

Where is the asset installed or stored – cost center, geo co-ordinates. How are the assets connected.

- Maintaining asset hierarchy (RTU to feeder, meter to premise, meter to SIM card etc.)

When

When is the next maintenance due – based on planned maintenance, current condition, predicted risk.

How

How do I know the condition of asset. How do I predict the condition of asset or chances of failure. How optimally is the asset used.

Industry challenges in maintenance and asset optimization

Limited Visibility into Asset Performance

Daily reports are historical, manual, inaccurate

Most EAM or CMMS solutions do not include advanced analytics

“Firefighting” vs. Strategic Improvement

Higher cost of reacting to unexpected failures and downtime

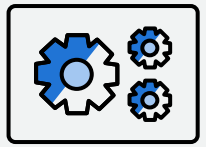
Most assets are managed as run-to-fail, putting production at risk

Extended Time to Corrective Action

Point solutions are not integrated into maintenance workflow

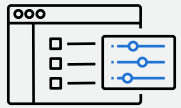
Limited long-term data strategy to support reliability strategy

Data driven asset operations



Data Access

Integrate data from new and legacy equipment, using different protocols



Data Management

Organize large amounts unstructured, disparate asset data

Scale

Manage assets and data across sites

Real time decision making

Operate at the edge with minimal tolerance for latency

Security

Keep operational assets and data secure

Democratize access to data and lay the foundation for digitizing asset operations

Organize, store and manage data
Get data from valuable assets to cloud in a simple, structured process

Visualize near real-time operational metrics
Visibility into OT data to perform Root Cause Analysis (RCA)

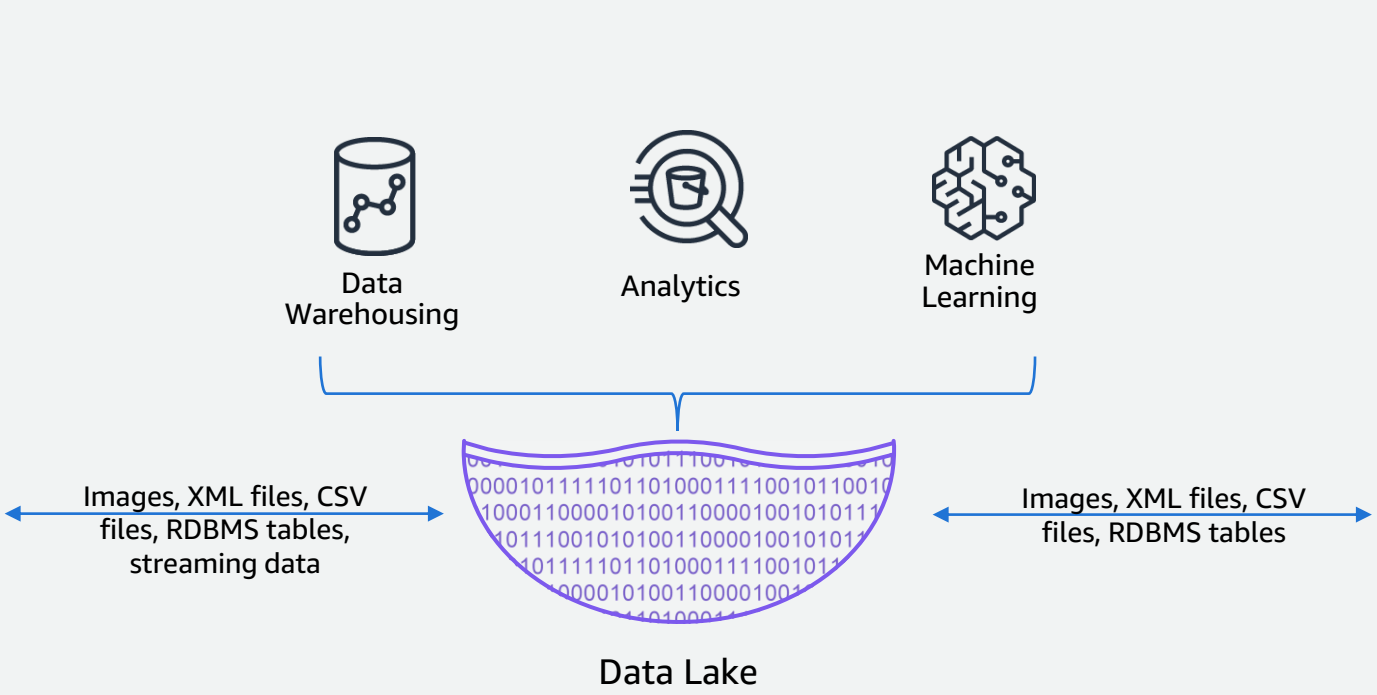
Streamline processes within IT systems
Additionally gathering insights from the OT systems helps streamline process within IT systems like ERP, Metering, Maintenance, SCADA, EAM

Foundation for Higher level solutions
This provides a scalable foundation to deploy solutions for use-cases like improve product quality predictive asset maintenance..

Accelerate business outcomes
Build vs buy solutions that help increase asset availability, increase product quality, increase knowledge of assets, lower costs, reduce maintenance costs and more.

Building asset models and profile data

- Asset management
- Metering
- SCADA
- ERP
- GIS
- IoT Gateway
- Workforce management



- 360 degree Asset profile
- Asset risk analysis
- Asset loading predictions
- Asset failure predictions
- Regulatory compliance & Reporting

- Integration layer to support multiple integration protocols for asset to application and application to application
- A single storage layer with common data model, to store structured and unstructured data of assets

Improving asset operations using cloud

Monitor & Store

•Obtain continuous, near real-time sensor data from assets using IoT based services
•Scale with growing number of assets
•Securely transport and ingest data into the cloud
•Deploy analytics at edge layer
•Scalable storage layer

Transform & Optimize

•Filters, transforms, and enriches IoT data before storing it in a time-series data store for analysis
•Automate the execution of your analysis using IoT Analytics
•Continuously monitor device data to predict maintenance issues

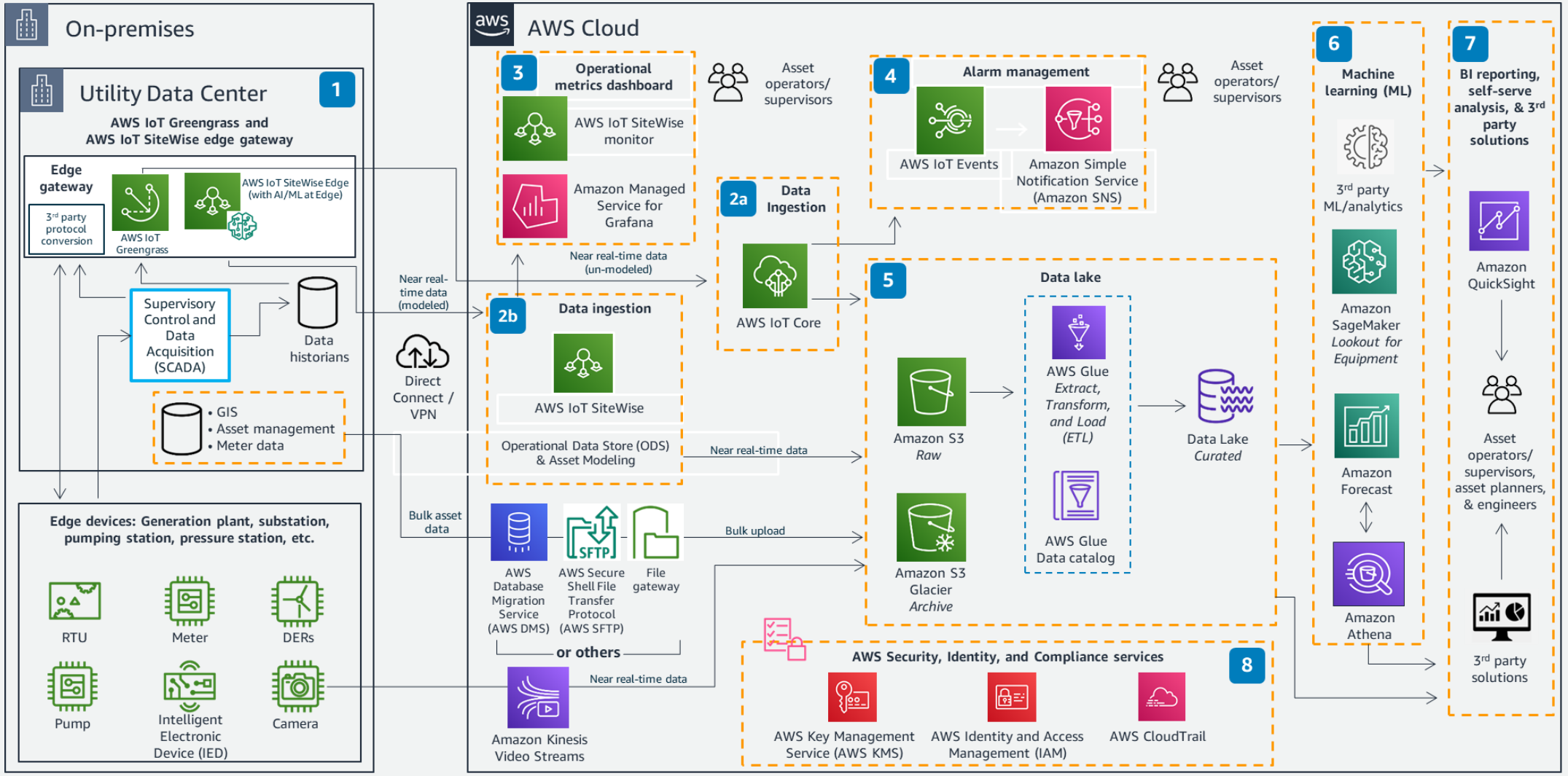
Contextualize & Detect

•Prioritize operations by identifying critical assets related to the overall health of your operation
•A holistic view that brings together asset base data, real-time data, alarms, events, and other operational data to get a clear picture of asset performance.
•Detect anomalies and raise alerts.

Analyze & Act

• Analyze historical maintenance and sensor data to detect abnormal equipment behaviour, with no ML experience required
•create digital twins of real-world equipment to create a knowledge graph
•Model assets and monitor them site wise
•Integrate with external IT/OT systems for action

Predictive equipment health – reference architecture



Source: https://d1.awsstatic.com/architecture-diagrams/ArchitectureDiagrams/predictive-equipment-health-for-utilities-ra.pdf

Thank you!

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