

Disruptive Technologies and Innovation For Distribution Utilities

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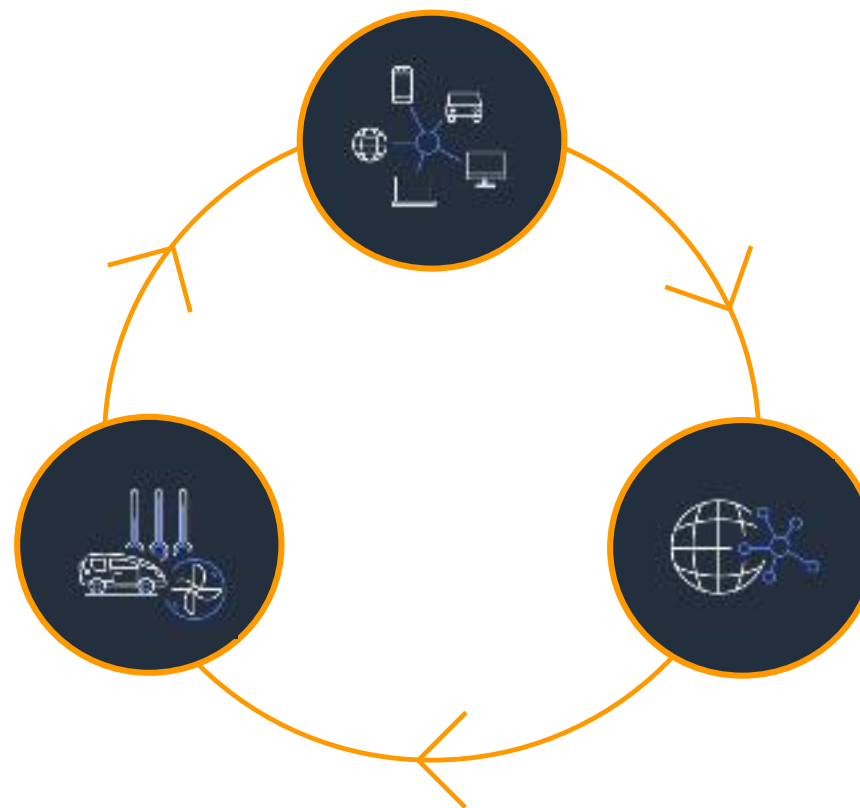
Utilities are being Disrupted by the 3Ds:

Decentralization

Customers becoming Prosumers; Distributed Energy Resources (DER) – PVs, Storage; Micro grids; Distributed Energy Management Systems (DERMS) Virtual Power Plants

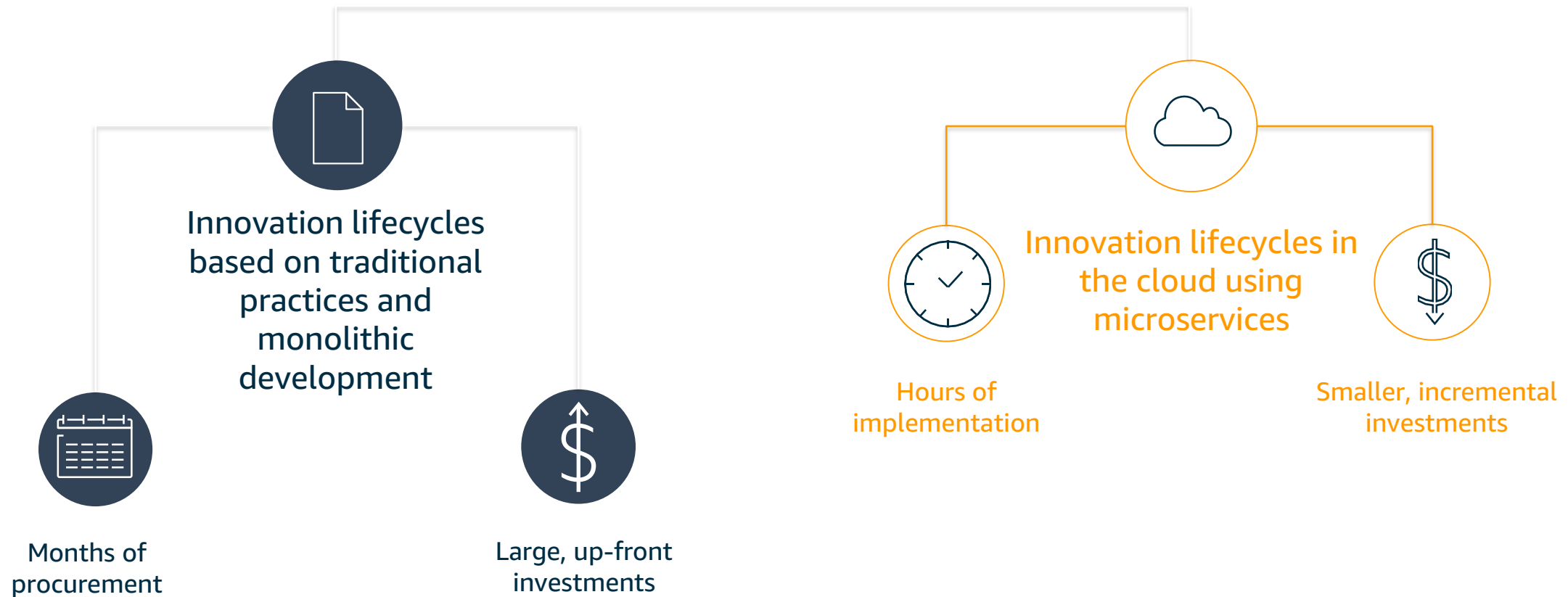
Decarbonization

Low/No carbon generation: Wind, solar, hydro, battery, heat pumps, gas turbines



Digitalization

Open, real-time, proactive automated communication; Consistent and frictionless self-service engagement across all channels; Mobile; Social; Smart meters & Smart homes, IoT





AWS IoT Core, Rules integrated with **Amazon Kinesis** streaming analytics to monitor and analyze IoT data



Spot defects and anomalies in visual representations using computer vision (CV) with **Amazon Lookout for Vision**



Deploy applications on **Amazon Elastic Compute** based instances, **Amazon ECS/EKS** for container based deployment, and other managed services
Use auto scaling to provision resources when performance requirement is higher

Network Operations

- Grid/ Generation operations
- Asset monitoring & maintenance
- Workforce Management

Consumer service

- Customer relationship management
- Metering
- Billing & Revenue management



Build analytics on streaming data (meter reads, transformer health parameters) with correlation using **Amazon Kinesis**



Build dashboards with auto generated insights using **Amazon QuickSight**

Organization wide IT Solutions

- Email & Collaboration
- Portal
- ERP
- Servers & Storage

Market Operations

- Demand & Supply forecasting
- Power procurement
- Capacity planning & expansion



Build on the data lake to use structured and unstructured data to implement AI/ML use cases using **Amazon SageMaker**
Use **Amazon Forecast's** AutoML function to forecast energy

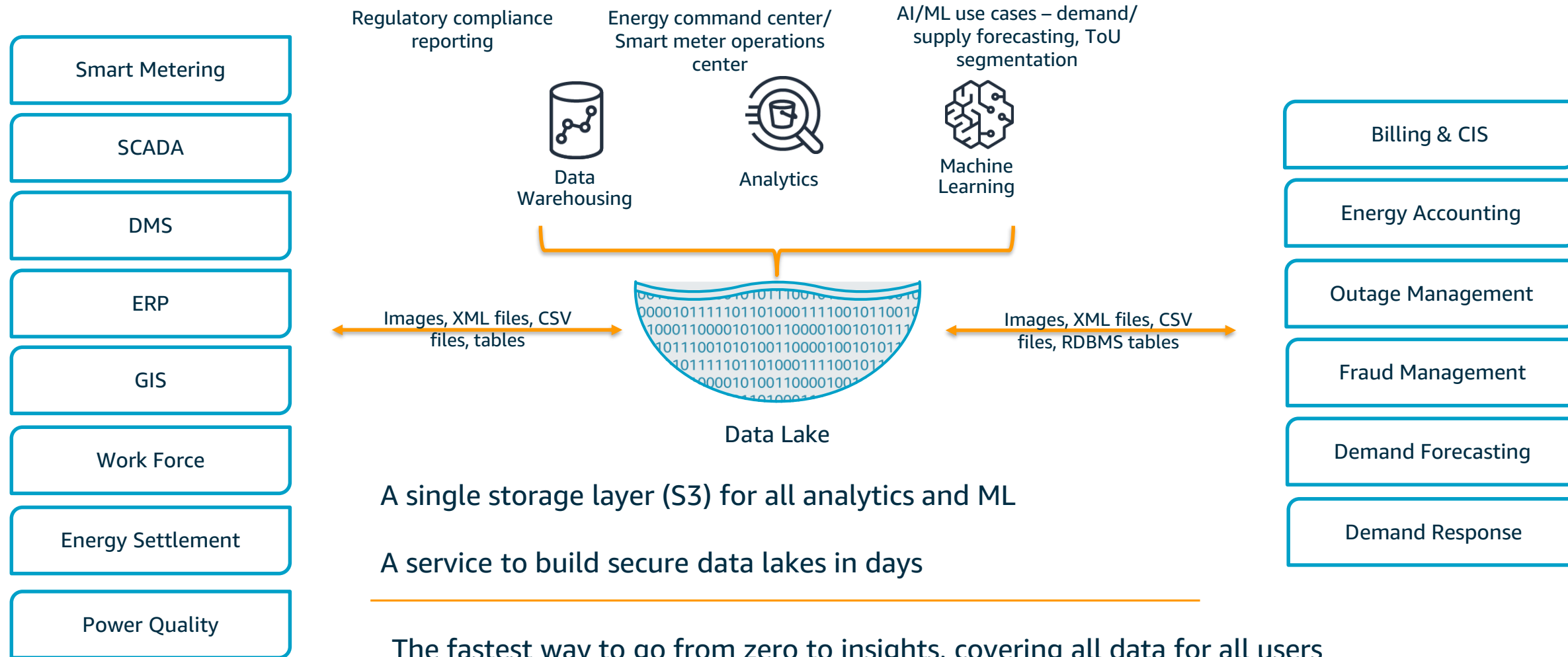
Bring together structured and unstructured data from AMI, SCADA, Billing etc. to build enterprise data lake



Amazon Simple Storage Service based enterprise data lake to store object based data



Amazon Redshift as a data warehouse to maintain utility data for querying



Billing Information	Revenue Assurance
Asset Management	Power Theft Prediction
Load Forecasting	Digital Twin
Customer Outage Reporting	Predictive Outage Planning
Customer Satisfaction Analysis	DER Planning and Simulation
Network Loss Optimization	Payment Alerts and Optimization
Energy Usage Alerts	Customer Behavior Analysis

Thank You

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