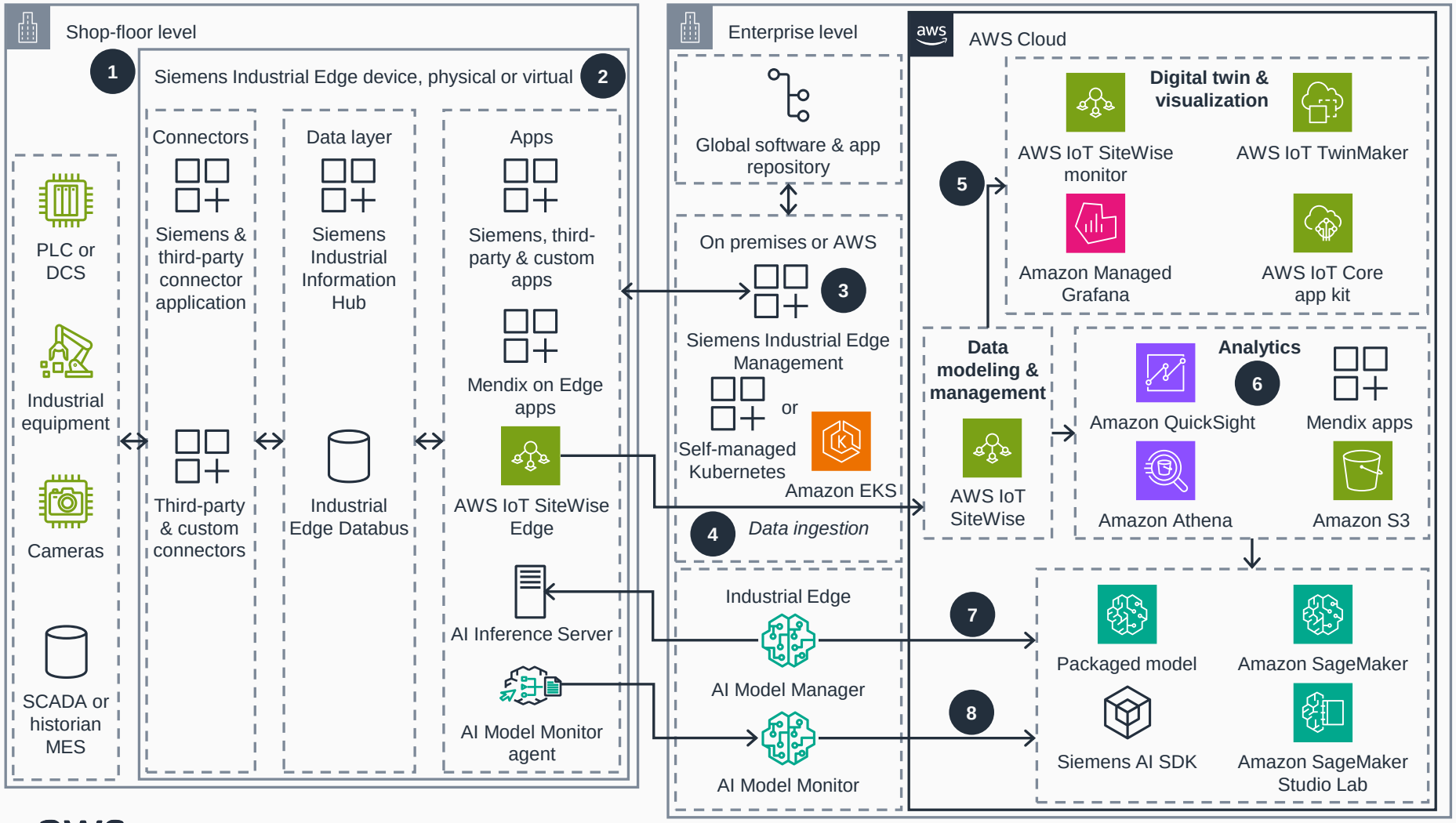
Guidance for Integrating an Industrial Data Fabric with Siemens Industrial Edge on AWS

This architecture diagram shows how to ingest near real-time data at scale from edge data sources into AWS IoT SiteWise by using AWS IoT SiteWise Edge and Siemens Industrial Edge.



1. Siemens Industrial Edge is an open software platform for simple, scalable, and manageable shop-floor IT. It provides decentralized and local data acquisition, storage, analytics, AI, and connectivity to AWS. The Industrial Edge Management application enables remote and central management of edge devices and applications.
2. On Industrial Edge devices, southbound connector applications—such as Open Platform Communications Unified Architecture (OPC-UA), Modbus TCP, and Siemens SIMATIC S7 connectors, ethernet and IP connectors, and other off-the-shelf connectors—collect data from industrial assets for on-premises processing and analysis. This is done with Siemens apps such as Energy Manager and Performance Insight. You can create your own apps using the Mendix on Edge integration, Industrial Edge Flow Creator, or Docker apps.
3. Industrial Edge Management can be deployed on-premises using a self-managed Kubernetes cluster or on AWS infrastructure using **Amazon Elastic Kubernetes Service (Amazon EKS)**.
4. **AWS IoT SiteWise Edge**, deployed on Industrial Edge devices, collects and aggregates data and sends it to **AWS IoT SiteWise**.
5. **AWS IoT SiteWise** Monitor, **AWS IoT TwinMaker**, or **Amazon Managed Grafana** get data from **AWS IoT SiteWise** to create visualizations and get insights into collected industrial data.
6. **Amazon Athena** enables you to query cold Internet of Things (IoT) data from **Amazon Simple Storage Service (Amazon S3)** for data analytics with **Amazon Managed Grafana**, **Amazon QuickSight**, or Mendix low-code apps.
7. AWS artificial intelligence and machine learning (AI/ML) services, like **Amazon SageMaker**, use data from **Amazon S3** to train ML models, then work with the Siemens AI Software Development Kit (SDK) to package and deploy ML models back to the edge.
8. The Siemens AI Model Manager deploys and manages ML models on the edge, and the Siemens AI Inference Server implements the models. The Siemens AI Model Monitor then observes them and provides results for use in model improvement.

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AWS Reference Architecture