aws

Industrial Data Lake for Predictive Maintenance using Amazon Monitron and Amazon Kinesis

Industrial Data Lake for Predictive Maintenance using Amazon Monitron and Amazon Kinesis: Architecture Diagrams

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Publication date: **September 28, 2022 ([Diagram history](#))**

This architecture diagram shows you how to build a data lake using AWS IoT sensors, real-time data streams, alerts, visualization, and integrated workflow with Enterprise Resource Planning (ERP) to analyze factory data for predictive maintenance and improve equipment uptime.

Industrial Data Lake for Predictive Maintenance using Amazon Monitron and Amazon Kinesis Diagram
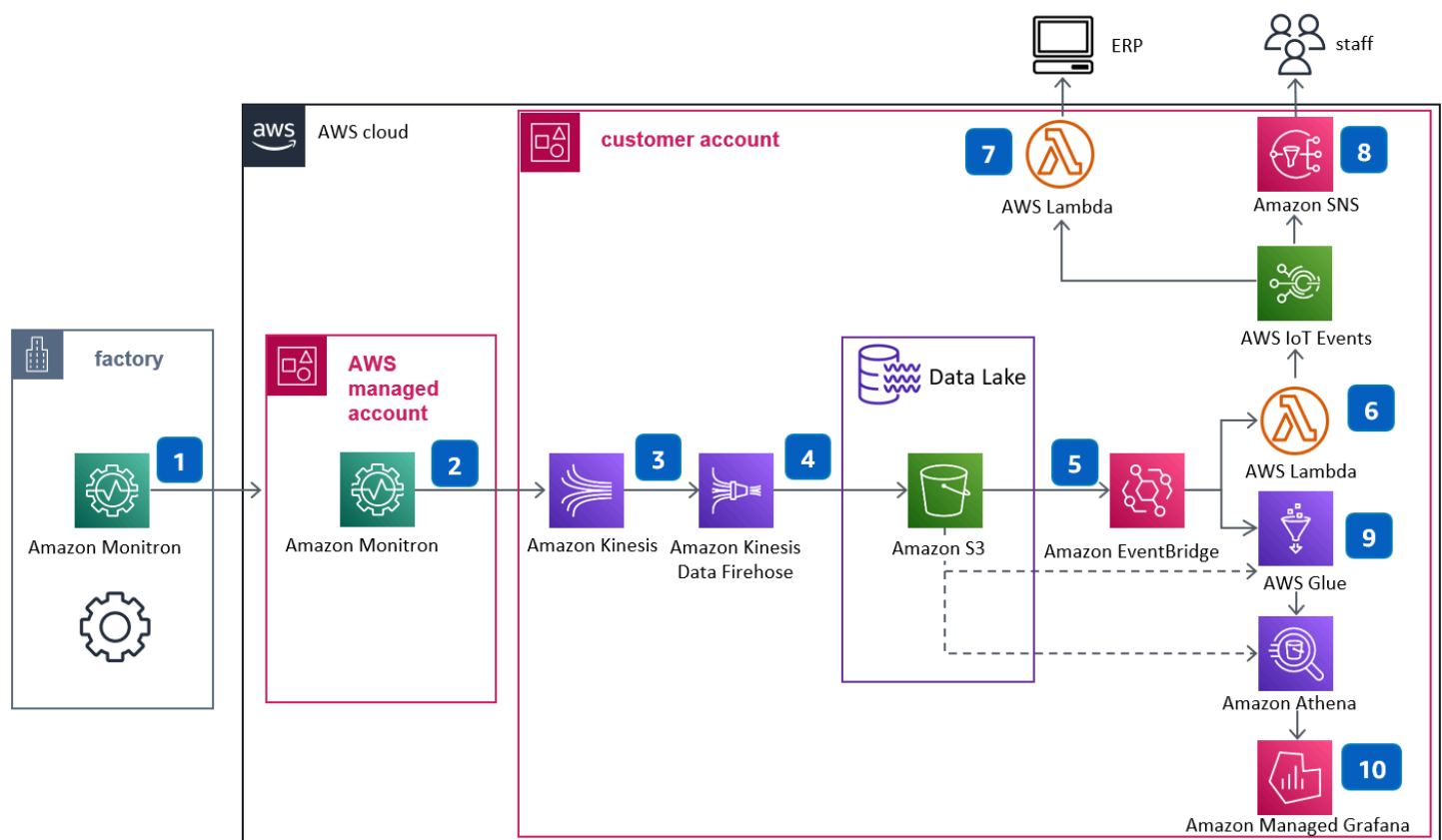
1. Install **Amazon Monitron** sensors and gateway in a factory.

2. Create **Amazon Kinesis Data Streams** using **Amazon Monitron** as the data source.

3. Configure **Amazon Kinesis Data Streams** from **Amazon Monitron** managed account to customer account.

4. Configure **Amazon Simple Storage Service** (Amazon S3) bucket as delivery destination of **Amazon Data Firehose**. **Amazon S3** serves as storage foundation for industrial data lake.

5. Configure **Amazon S3** notifications to send events to the **Amazon EventBridge** destination.

6. Configure an **AWS Lambda** function as the target of **Amazon EventBridge** destination rules. The **Lambda** function processes the **Amazon S3** event and sends it to an **AWS IoT Events** state machine.

7. **AWS IoT Events** responds to sensor warning state and creates ERP work order using **AWS Lambda**.

8. **AWS IoT Events** responds to the sensor warning state and notifies personnel using **Amazon Simple Notification Service** (Amazon SNS) topic via SMS, mobile push, and email.

9. Connect **AWS Glue** data pipeline to **Amazon S3** bucket and schedule Glue job via **Amazon EventBridge**. **Amazon Athena** then queries S3 data as reports and metrics.

10. Visualize IoT metrics and state from **Athena** queries using **Amazon Managed Grafana**.

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Further reading

For additional information, refer to

- AWS Architecture Icons
- AWS Architecture Center
- AWS Well-Architected

Diagram history

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Change	Description	Date
Initial publication	Reference architecture diagram first published.	September 22, 2021

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