Manufacturing Data Lake

Build a manufacturing data lake that includes operational technology data (Industrial Internet of Things [IIoT] and factory applications) with enterprise application data for manufacturing analytical use cases and predictions with machine learning (ML) models.

1. Create a data lake structure using AWS Lake Formation or Amazon S3 and Amazon Redshift.
2. For structured relational data, create an Amazon RDS instance within a VPC.
3. For compatible enterprise applications, use Amazon API Gateway and Lambda functions to create an interface into the RDS instance.
4. For compatible databases, use AWS Database Migration Service to create copies or export structured data sets.
5. For industrial IoT (IIoT) and automation equipment, use AWS IoT Core and Amazon Kinesis Data Firehose to stream data into the Data Lake.
6. For external or batch interfaces, use AWS Transfer for SFTP to put data into the Data Lake.
7. Once data ingest paths are set up, use AWS Glue to build the data catalog and to create the ETL jobs for data processing.
8. Use Amazon SageMaker to train and deploy machine learning models from the data sets.
9. Use AWS AppSync to build a GraphQL endpoint with AWS Lambda resolvers to provide an application interface to the data.
10. Build visualizations and dashboards using Amazon QuickSight with Amazon Athena and Amazon Redshift.