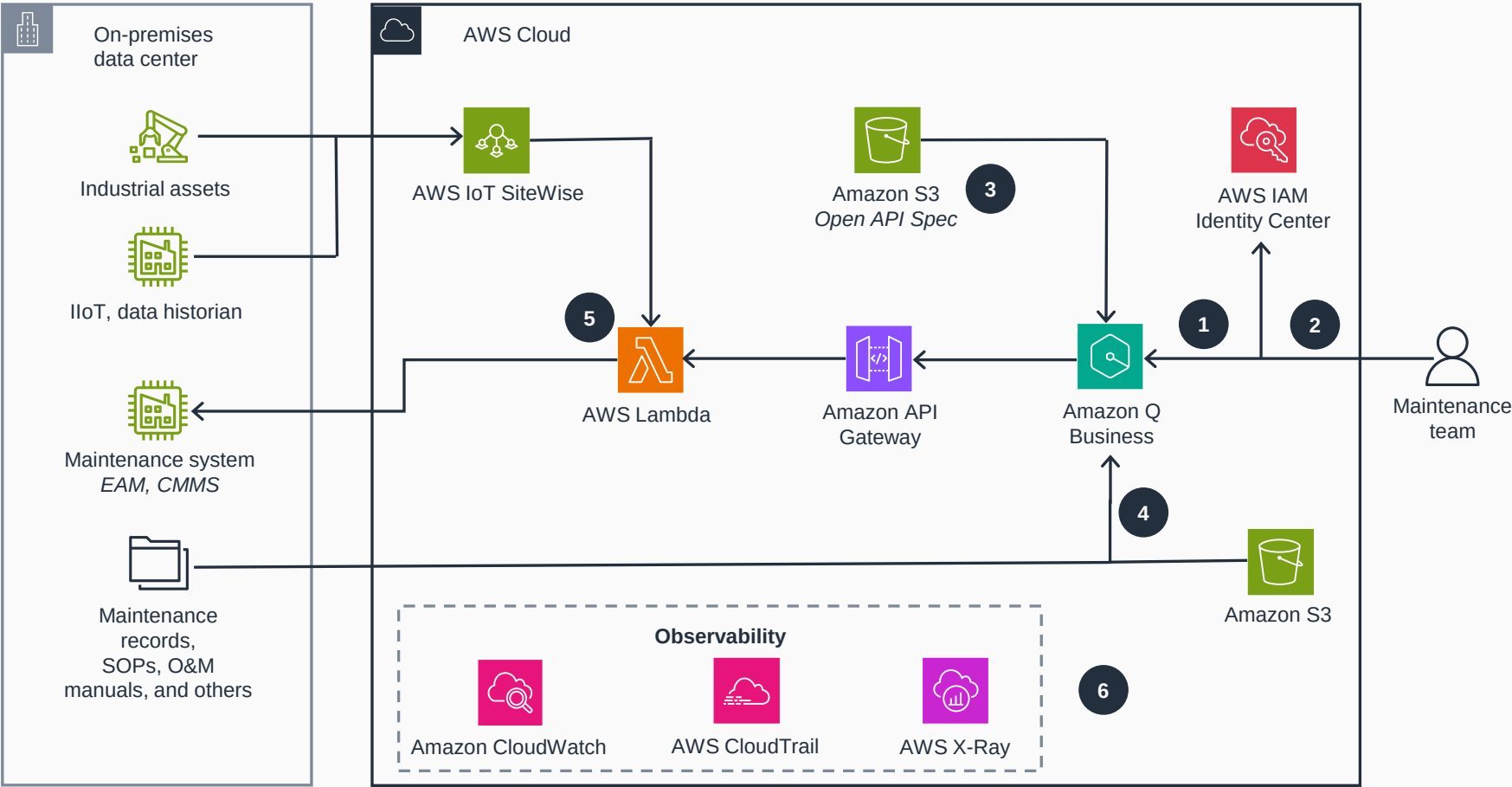


Guidance for Assisted Diagnosis and Troubleshooting on AWS

Amazon Q Business deployment

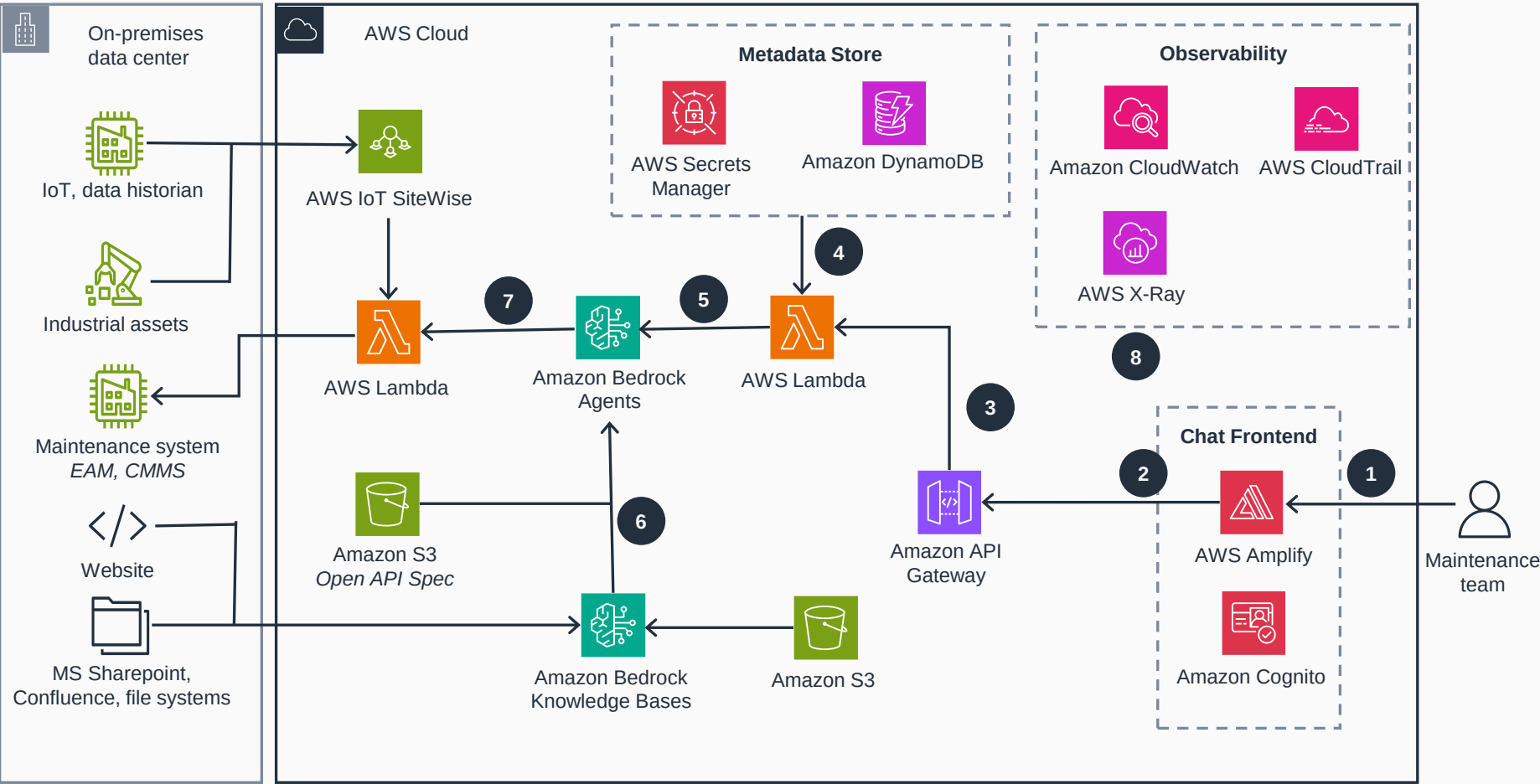
This architecture diagram illustrates how to build an AI-powered diagnostic system using Amazon Q Business. This accelerates equipment troubleshooting through natural language conversations with maintenance documentation and real-time telemetry data.



Guidance for Assisted Diagnosis and Troubleshooting on AWS

Amazon Bedrock RAG deployment

This architecture diagram illustrates how to build an AI-powered maintenance diagnostic system using Amazon Bedrock Agent. This accelerates troubleshooting through conversational interfaces with maintenance documentation and real-time IoT equipment data.



- 1 A maintenance team member begins the diagnostic process by accessing and interacting with a web-based chat interface built with **AWS Amplify**.
- 2 Authenticated requests route through **API Gateway**, providing centralized access control and request throttling.
- 3 **API Gateway** forwards the requests to a **Lambda** function which processes user prompts and communicates with **Amazon Bedrock Agents** for maintenance assistance and diagnostics.
- 4 **Amazon DynamoDB** stores large language model (LLM) configuration and conversation history. **AWS Secrets Manager** securely stores external system credentials.
- 5 An **Amazon Bedrock Agent** executes multistep troubleshooting using LLM reasoning. It performs retrieval augmented generation (RAG) on documentation and retrieves IoT data from **AWS IoT SiteWise**, dynamically assessing information needs.
- 6 **Amazon Bedrock Knowledge Base** support retrieval-augmented generation (RAG) using data from **Amazon S3** or on-premises repositories. To access on-premises data, connect your network to an **Amazon VPC** through **AWS Site-to-Site VPN** or **AWS Direct Connect**. Review the the AWS Hybrid Connectivity whitepaper for best practices.
- 7 **Lambda** fetches data from **AWS IoT SiteWise** for OT data and connects to CMMS and EAM systems for automated work order creation.
- 8 **CloudWatch**, **CloudTrail**, **X-Ray**, and **Amazon Managed Grafana** provide comprehensive monitoring, logging, tracing, and visualization capabilities to monitor the application