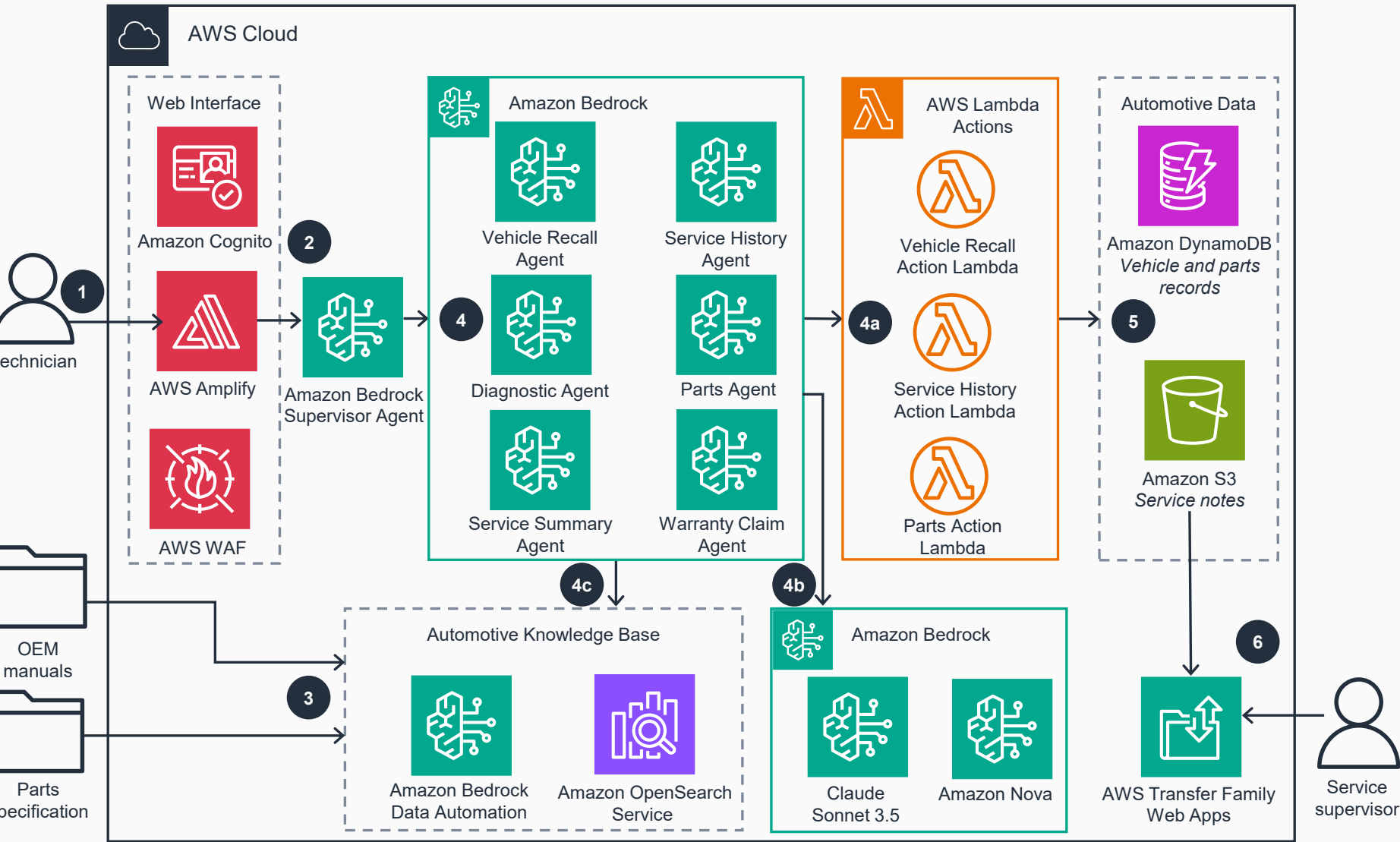


Guidance for Building an Automotive Technician with Multimodal Agentic AI on AWS

This Guidance shows multi-modal agentic AI to provide real-time visual guidance and technical support, helping field technicians identify issues, locate parts, execute repairs, and facilitate warranty claim process.



Reviewed for technical accuracy July 17, 2025
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AWS Reference Architecture

- 1 Technician interacts with the solution by text or voice, through React UI, hosted on **AWS Amplify**, a managed and scalable multi-system hosting service, alongside **Amazon Cognito** for user login and **AWS WAF** as public traffic firewall.
- 2 The **Amazon Bedrock** supervisor agent receives input, uses instructions to understand the input, and manages and delegates tasks required to the group of **Amazon Bedrock** collaborator agents.
- 3 Multimodal data sources, such as OEM manuals and parts specification, that are used by the service technician are ingested using **Amazon Bedrock Data Automation**. Embeddings are stored in vector databases, provided by **Amazon OpenSearch**.
- 4 The group of **Amazon Bedrock** collaborator agents, including vehicle recall agent, service history agent, diagnostic agent, parts agent, service summary agent, and warranty claim agent, receive tasks from the supervisor agent in parallel and as supervisor agent's predictions require.
- 4a The group of collaborator agents invoke **AWS Lambda** actions, such as vehicle recall action **Lambda**, service history action **Lambda**, and parts action **Lambda**, as agents' predictions require.
- 4b The group of collaborator agents invoke LLM models, such as **Claude Sonnet 3.5** and **Amazon Nova (Pro and Sonic)** as needed.
- 4c The group of collaborator agents query **Amazon Bedrock Knowledge Bases** for Automotive, based on agents' predictions.
- 5 Collaborator agents use **Lambda** actions to enable integrations with automotive data sources and perform reads and writes to data sources in real-time. These data sources include **Amazon DynamoDB** that provides vehicle and parts records, **Amazon S3** that stores service notes, and more.
- 6 Service supervisor accesses files uploaded through React UI using the web portal provided by **AWS Transfer Family Web Apps**, a no-code, fully managed app for file access to **Amazon Simple Storage Service (Amazon S3)**.