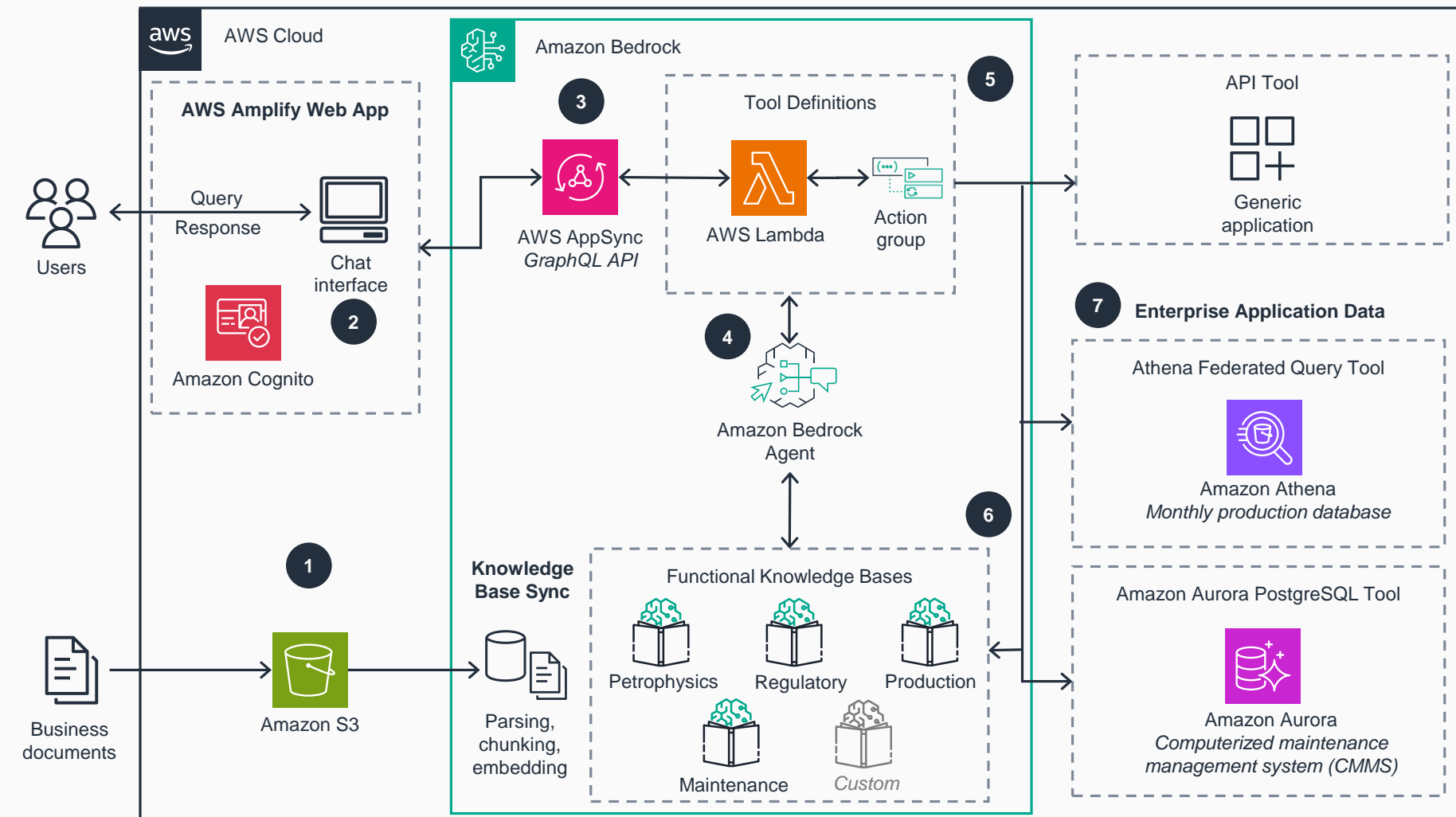


Guidance for Agentic Workflow Assistants on AWS

This architecture diagram demonstrates how to build agent-based assistants to improve productivity of specialized employees such as reservoir engineers. Through a chat interface or triggered events, customers will get responses to questions about data, trends, insights, and potential opportunities for optimized energy growth.



- 1 Source business documents, data files, and diagrams from shared drives such as SharePoint or the internet. **Amazon Simple Storage Service (Amazon S3)** stores private company data, allowing the agent to store and retrieve contextual information. **Amazon Bedrock Knowledge Bases** contains vectorized embeddings stored in serverless **Amazon Aurora** or **Amazon OpenSearch Serverless**.
- 2 Users can interact with agents securely through a simple chat interface secured by **Amazon Cognito**. A user-selected agent is configured to use the correct LLM with persona-optimized instructions and settings.
- 3 **AWS AppSync** hosts a GraphQL API, which handles sending user queries to the agents in the backend which process the request.
- 4 **Amazon Bedrock Agents** automates multi-step tasks by seamlessly connecting with company systems, APIs, and data sources.
- 5 **AWS Lambda** functions can be configured as **Amazon Bedrock action groups** to provide tool capabilities. The agent uses tools to perform deterministic real-time enterprise data queries (for example, text-to-SQL), API calls, and engineering calculations to incorporate into the user response.
- 6 **Amazon Bedrock Knowledge Bases** provides **Amazon Bedrock Agents** with vectorized versions of business documents for fast retrieval of multi-modal data. Agents can contribute to their own knowledge base to continue learning from new interactions.
- 7 Enable existing enterprise data sources through agent tools and by periodic embeddings into knowledge bases. This solution provides both options to optimize each business use case for accuracy, performance, and cost. For example, **Amazon Athena** enables the LLM agent to query structured data stores by executing SQL queries.

