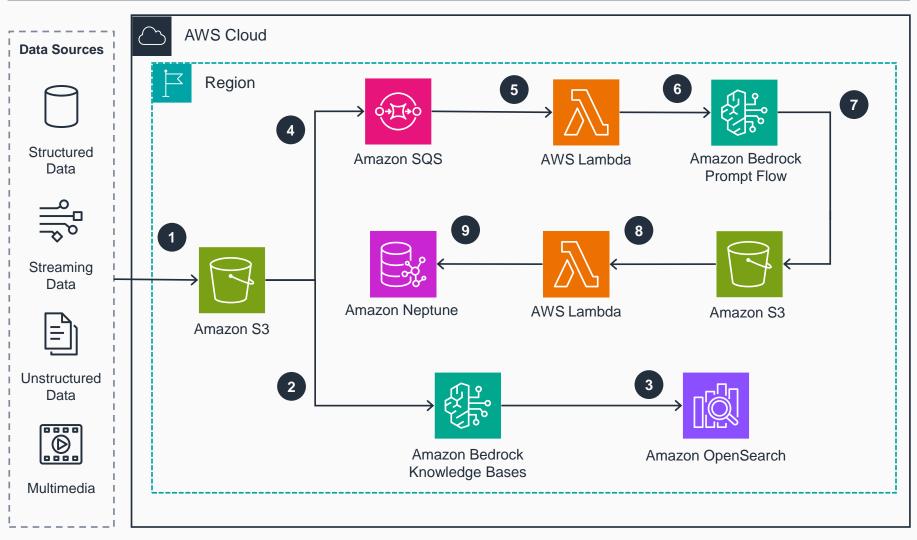
## **Guidance for Agentic Data Exploration on AWS**

## **Data Ingestion**

This architecture diagram illustrates how to effectively support agentic data exploration on AWS. It shows the key components of the data ingestion process for structured and unstructured data.

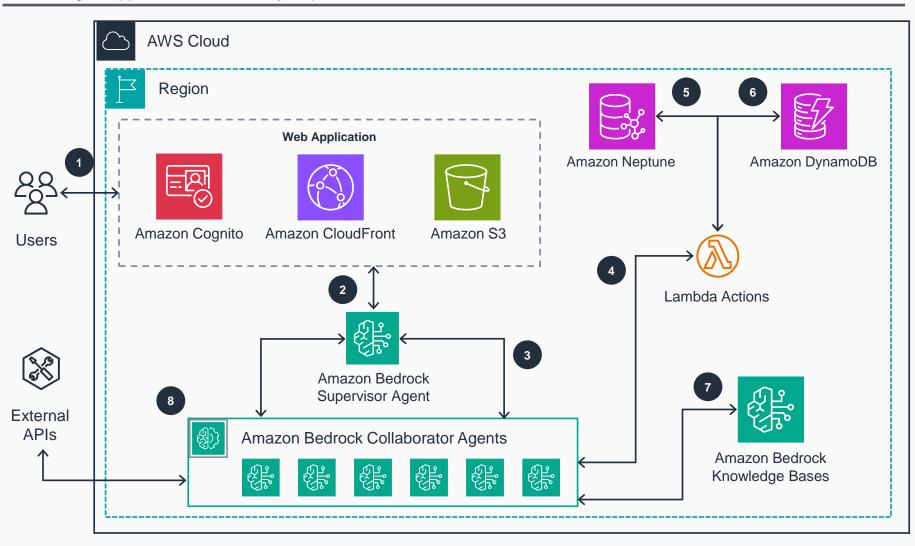


- Users upload or stream diverse data, such as documents and database exports into Amazon Simple Storage Service (Amazon S3).
  - **Note:** You may perform additional data preparation when data is ingested depending on the type of content.
- Unstructured data is loaded into Amazon
  Bedrock Knowledge Bases that Amazon
  Bedrock Agents can later access.
- Amazon OpenSearch Service is used to provide vector storage for Amazon Bedrock Knowledge Bases.
- The creation of new structured data on Amazon S3 triggers a message to Amazon Simple Queue Service (Amazon SQS).
- An **AWS Lambda** function is used to process messages in the SQS queue.
- An **Amazon Bedrock** Prompt Flow inspects incoming data by analyzing data entities and fields to infer relationships.
- CSV files are reformatted and stored in an openCypher compatible format on Amazon S3.
- An AWS Lambda function bulk loads data into an Amazon Neptune graph database.
- Amazon Neptune stores data nodes and relationships for later use by Amazon Bedrock Agents.

## **Guidance for Agentic Data Exploration on AWS**

## **Data Exploration**

This architecture diagram illustrates how to effectively support agentic data exploration on AWS. It shows the key components of the multi-agent application used to analyze, process, and search data.



- Users access the front-end web application hosted on Amazon Simple Storage Service (Amazon S3), served by Amazon CloudFront, and secured by Amazon Cognito.
- Users interact with the Amazon Bedrock
  Supervisor Agent through a chat interface.
  Complex user tasks are divided into specific subtasks and completed by specialized collaborator agents.
- A set of **Amazon Bedrock** Collaborator Agents is used to perform specific data exploration tasks including schema analysis and data transformation as assigned by the supervisor agent.
- AWS Lambda functions are used by Amazon Bedrock Collaborator agents as tools analyze, load and query data.
- Relational data is translated from CSV to openCypher format for bulk loading into the Amazon Neptune database using AWS Lambda functions.
- Users can review data analysis results stored in Amazon DynamoDB tables through the frontend web application.
- Amazon Bedrock Knowledge Bases are used to store data that supports Retrieval-Augmented Generation (RAG) by Amazon Bedrock Collaborator Agents.
- Amazon Bedrock Collaborator Agents connect to external APIs for data retrieval.