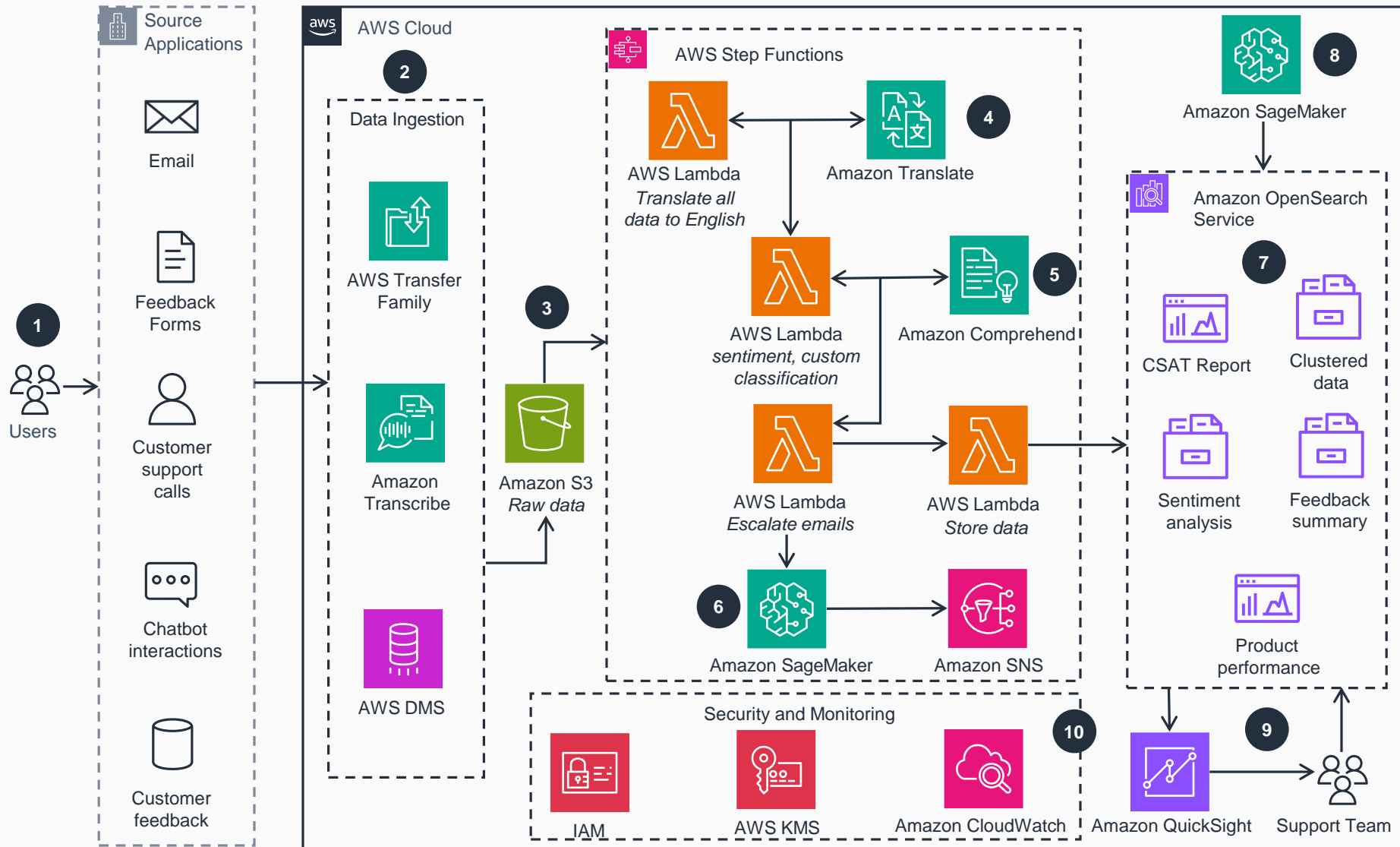# Guidance for Capturing and Analyzing Unstructured Customer Feedback on AWS

This architecture diagram shows how to capture customer feedback when it is in an unstructured data format.

Source Applications
Email
Feedback Forms
Customer support calls
Chatbot interactions
Customer feedback

AWS Cloud

Data Ingestion
AWS Transfer Family
Amazon Transcribe
AWS DMS

Amazon S3 *Raw data*

AWS Step Functions
AWS Lambda *Translate all data to English*
Amazon Translate
AWS Lambda *sentiment, custom classification*
Amazon Comprehend
AWS Lambda *Escalate emails*
AWS Lambda *Store data*
Amazon SageMaker
Amazon SNS

Amazon SageMaker

Amazon OpenSearch Service
CSAT Report
Clustered data
Sentiment analysis
Feedback summary
Product performance

Security and Monitoring
IAM
AWS KMS
Amazon CloudWatch

Amazon QuickSight
Support Team

Users

1. Source applications collect feedback from emails, feedback forms, customer support call recordings, and chatbot transcripts in databases or file systems.

2. **Amazon Transcribe** creates transcripts of customer call recordings. **AWS Transfer Family** transfers files to AWS and **AWS Database Migration Service (AWS DMS)** and connects and replicates data from different databases to AWS. **Amazon Simple Storage Service (Amazon S3)** provides an intermediate landing zone for raw data at any velocity, volume, or variety.

3. A new feedback event pushes text files to **Amazon S3**. The event-based architecture invokes the respective **AWS Lambda** function to start feedback inference.

4. **Lambda** translates the data to English in near real-time using the neural machine on **Amazon Translate**.

5. **Lambda** extracts and processes the text using **Amazon Comprehend**, which processes the extracted text and performs clustered data and feedback, CSAT report, feedback summary, sentiment analysis, and product performance. For better accuracy, we leverage a custom classifier within **Amazon Comprehend**.

6. **Lambda** uses a large language model (LLM) on **Amazon SageMaker** to identify the right department to be notified and routing rule for urgent feedback. **Amazon Simple Notification Service (Amazon SNS)** sends these notifications. **Lambda** pushes the final data to store in an open search index.

7. **Amazon Open Search Service** performs custom querying data for near real-time search, big data analytics, and custom dashboards.

8. **SageMaker** LLM summarizes non-urgent feedback, such as a feature suggestion, which is then stored in **Open Search Service** using a different index.

9. **Amazon QuickSight** provides a comprehensive view of all customer feedback with a summary to drill down capabilities and analyze feedback.

10. AWS security services secure and monitor this Guidance.

Reviewed for technical accuracy October 27, 2023
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AWS Reference Architecture