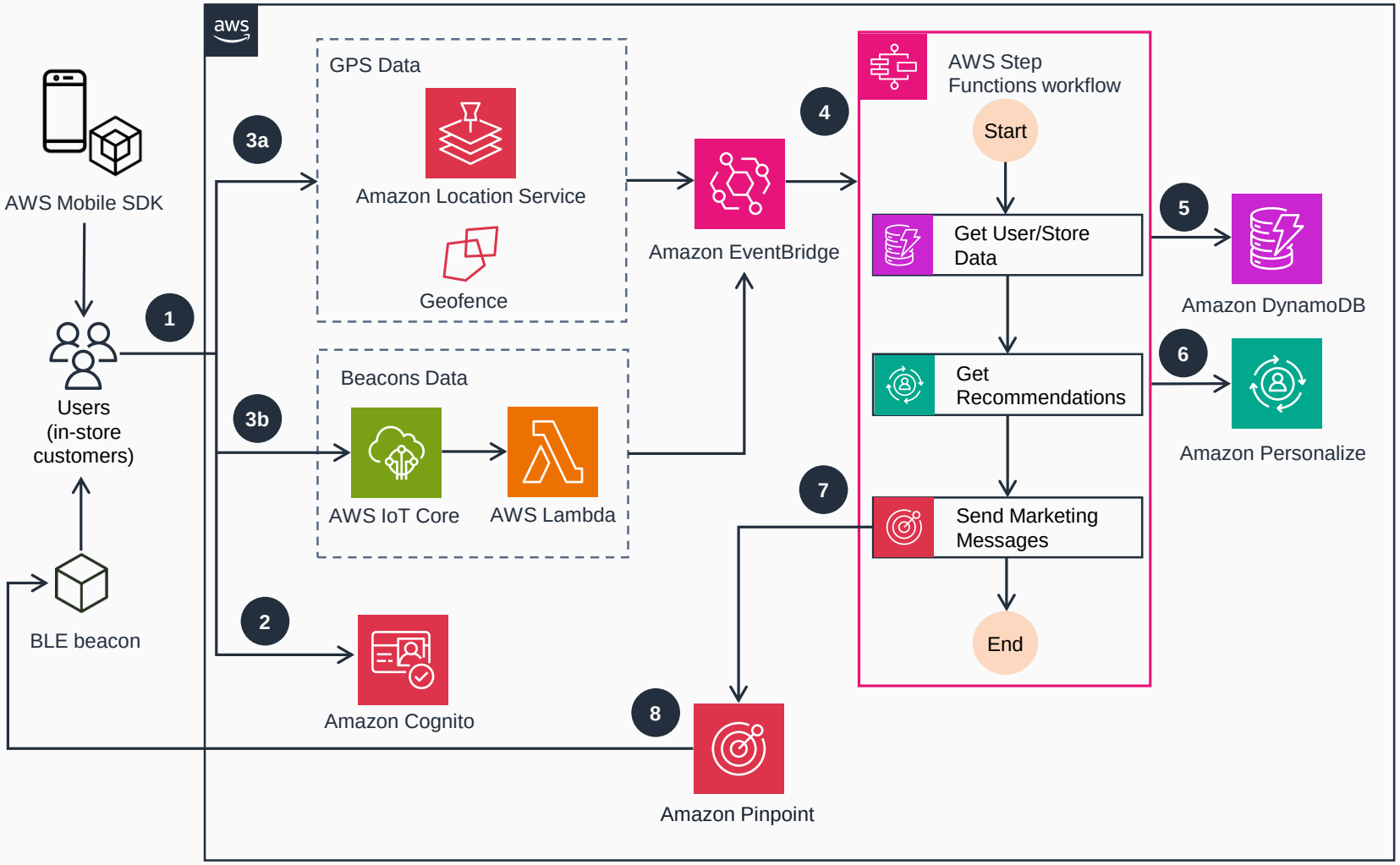
# Guidance for Target Marketing on AWS

This architecture diagram shows an approach to implementing geofence target marketing, enabling personalized recommendations and promotions through push notifications, SMS, and email for retail customers detected through GPS or in-store Bluetooth beacons.




1. Users grant either GPS or Bluetooth tracking permissions to the retailer's native app. For GPS, the **Amazon Location Service SDK** detects the user's current location. For Bluetooth, the retailer's app detects Bluetooth Low Energy (BLE) beacon signals inside the store and publishes user and beacon data to **AWS IoT Core** using message queuing telemetry transport (MQTT).
2. **Amazon Cognito** grants permissions to AWS services for users authenticated in the retailer's app.
3a. For GPS, **Location Service** detects if the user's location is within a geofence from the pre-defined geofence collection to generate geofence events that are sent to **Amazon EventBridge**.
3b. For Bluetooth, **AWS IoT Core** invokes an **AWS Lambda** function with the data from the retailer's app and generates beacon detection events that are sent to **EventBridge**.
4. An **EventBridge** rule responds to geofence and beacon detection events and invokes an **AWS Step Functions** workflow as a target.
5. The **Step Functions** workflow processes the events and validates information such as customer marketing consents and store locations with the help of data persisted in **Amazon DynamoDB**.
6. The **Step Functions** workflow invokes **Amazon Personalize** APIs with user data to retrieve recommendations.
7. The **Step Functions** workflow invokes **Amazon Pinpoint** APIs with user and recommendations data.
8. The **Amazon Pinpoint SDK** is integrated with the retailer's app, enabling **Amazon Pinpoint** to send recommendations and promotions to users through push notifications, SMS, and emails.

*Reviewed for technical accuracy April 11, 2024*



**AWS Reference Architecture**