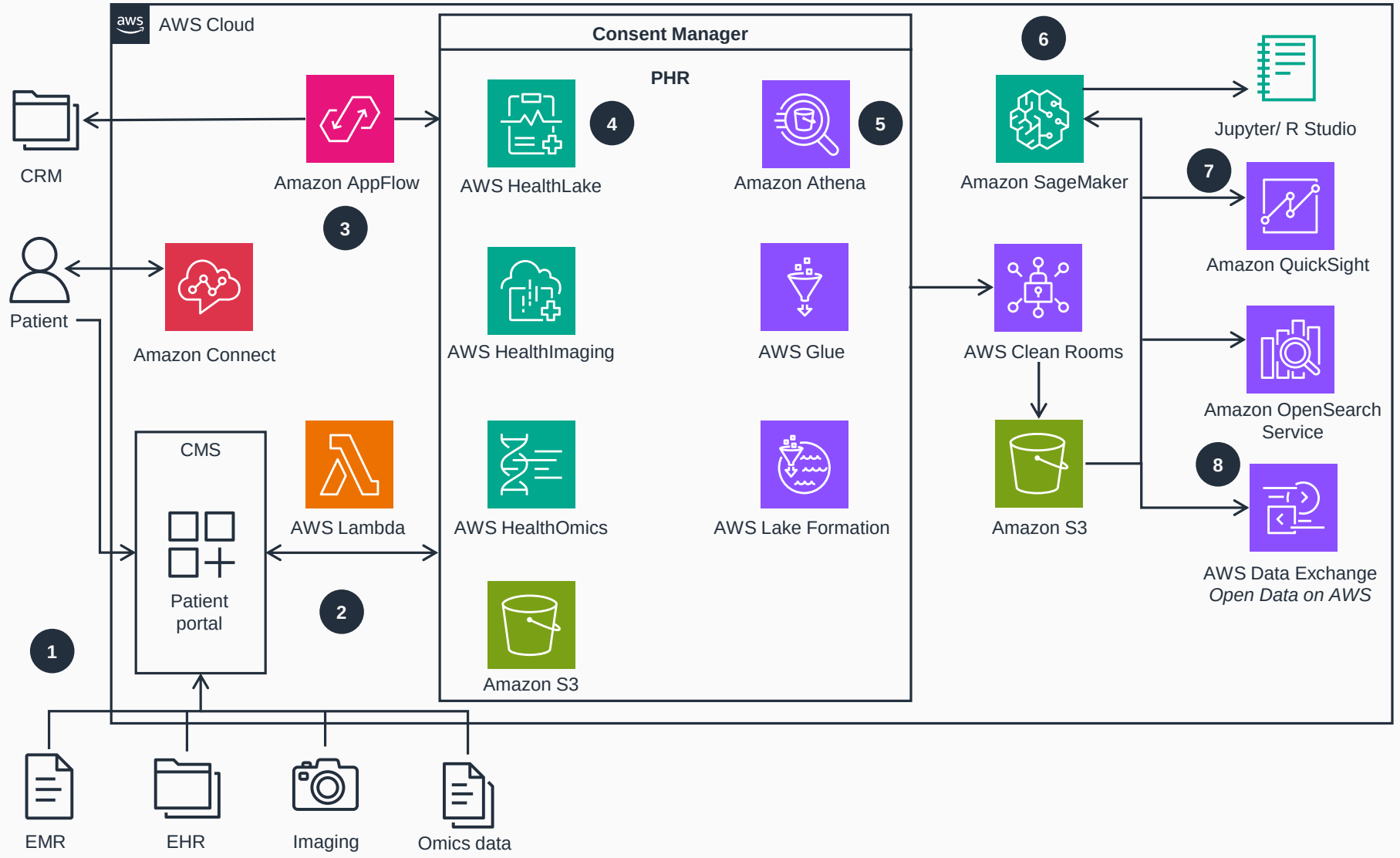
Guidance for Nonprofit Patient Advocacy Portal on AWS

This architecture diagram enables patients and caregivers to use personal health records to make informed decisions.



1. Patients use the patient portal to import personal health data including electronic medical records (EMR), electronic health records (EHR), medical imaging, and omics data.
2. The patient portal sends the data to the personal health record (PHR). The PHR is a harmonized, multimodal record implemented on **Amazon HealthLake**, **Amazon HealthImaging, AWS HealthOmics**, and **Amazon Simple Storage Service (Amazon S3)**.
3. A profile builder on **AWS Lambda** translates PHR to a patient profile in a content management system (CMS). **Amazon AppFlow** synchronizes the patient profile with a customer relationship management (CRM) system. A call center powered by **Amazon Connect** supports patients.
4. Data scientists catalog, transform, and analyze data using **AWS Glue** and **Amazon Athena**. **AWS Lake Formation** provides a master patient index and manages data access.
5. A consent manager governs sharing PHR data through **AWS Clean Rooms** into an **Amazon S3** bucket, which is the data source for all downstream analysis.
6. Researchers perform machine learning using **Amazon SageMaker**-managed Jupyter and R Studio notebooks.
7. Researchers explore data visually using **Amazon QuickSight** and search data using **Amazon OpenSearch Service.**
8. Researchers share de-identified data using **AWS Data Exchange** and **Open Data on AWS.**

Reviewed for technical accuracy September 27, 2023

AWS Reference Architecture