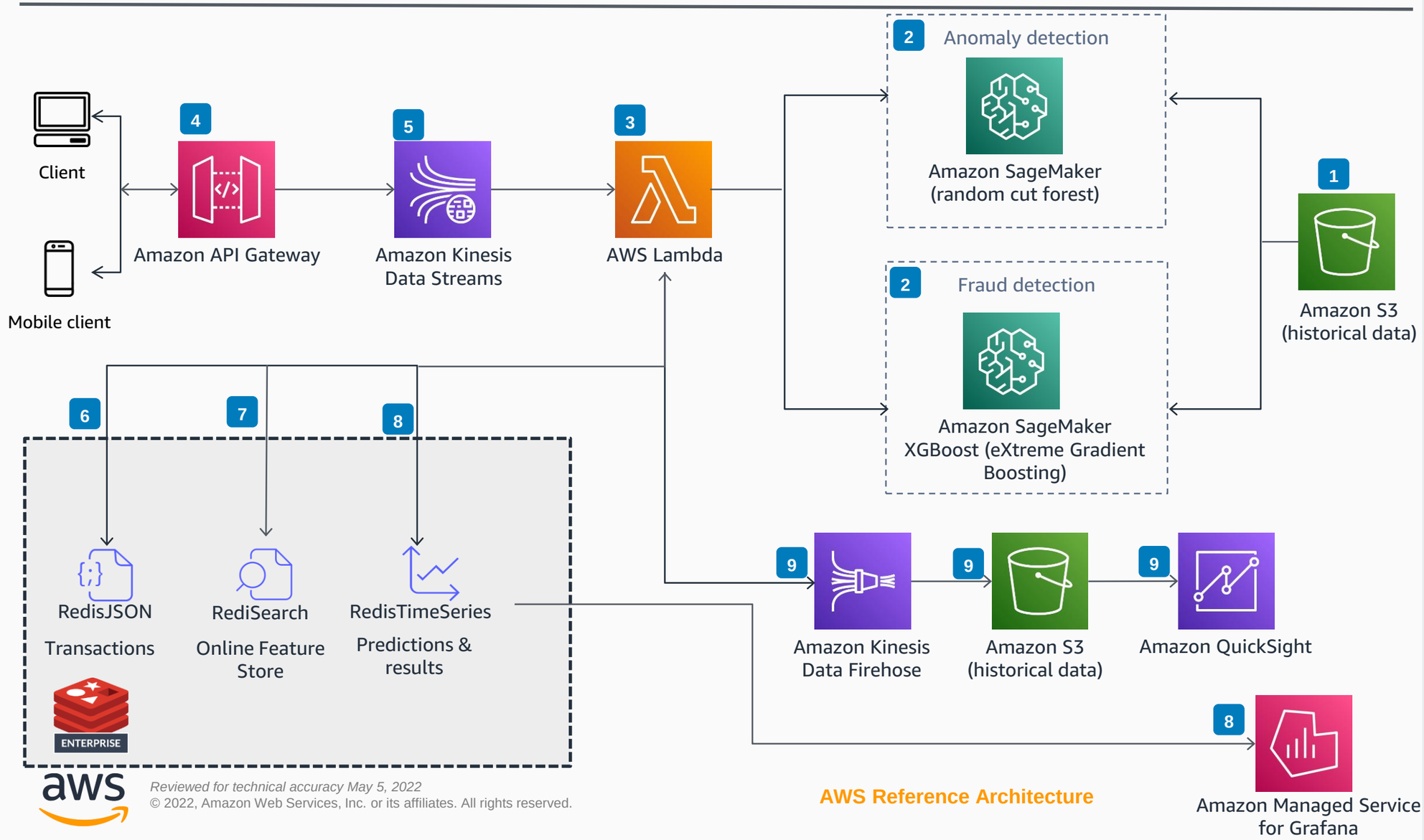
Realtime Fraud Detection powered by Redis Enterprise Cloud

Make the most of the fully managed database-as-a-service (DBaaS) on AWS

The following diagram shows how Redis Enterprise Cloud on AWS can be used as both a primary database and as an online feature store for machine learning (ML) based fraud detection using both rule-based and ML-based approaches. Redis Enterprise Cloud offers Redis Modules that enrich the Redis core data structures with support for modern data models - such as JSON, Graph and Timeseries - to address a range of customer use cases, including fraud detection, real-time inventory, forecasting, leaderboards, session management, caching, customer relationship management, and claims processing.



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AWS Reference Architecture

1. An **Amazon Simple Storage Service (Amazon S3)** bucket contains historical datasets of credit card transactions.
2. An **Amazon SageMaker** notebook instance with different ML models will train on the datasets.
3. An **AWS Lambda** function that processes transactions from the historical datasets and invokes the two **Amazon SageMaker** endpoints that assign anomaly scores and classification scores to incoming data points.
4. End users (mobile and web clients) invoke **Amazon API Gateway** REST API for predictions using signed HTTP requests.
5. **Amazon Kinesis Data Streams** are used to capture real-time event data.
6. **AWS Lambda** function reads the stream and persists transactional data to RediSearch and RedisJSON enabled Redis Enterprise Cloud database.
7. **AWS Lambda** function also leverages Redis Enterprise Cloud as a feature store (no Redis modules are required for this functionality).
8. **AWS Lambda** function further persists the prediction results to Redis Enterprise Cloud database. Optionally, the results along with transactional details can also be stored to a timeseries database for further data visualizations using **Grafana**.
9. AWS Lambda function optionally can pass the prediction results via **Amazon Kinesis Data Firehose** which persists the data to an **Amazon S3** bucket so that **Amazon QuickSight** can consume this data for visualizations and analytics.