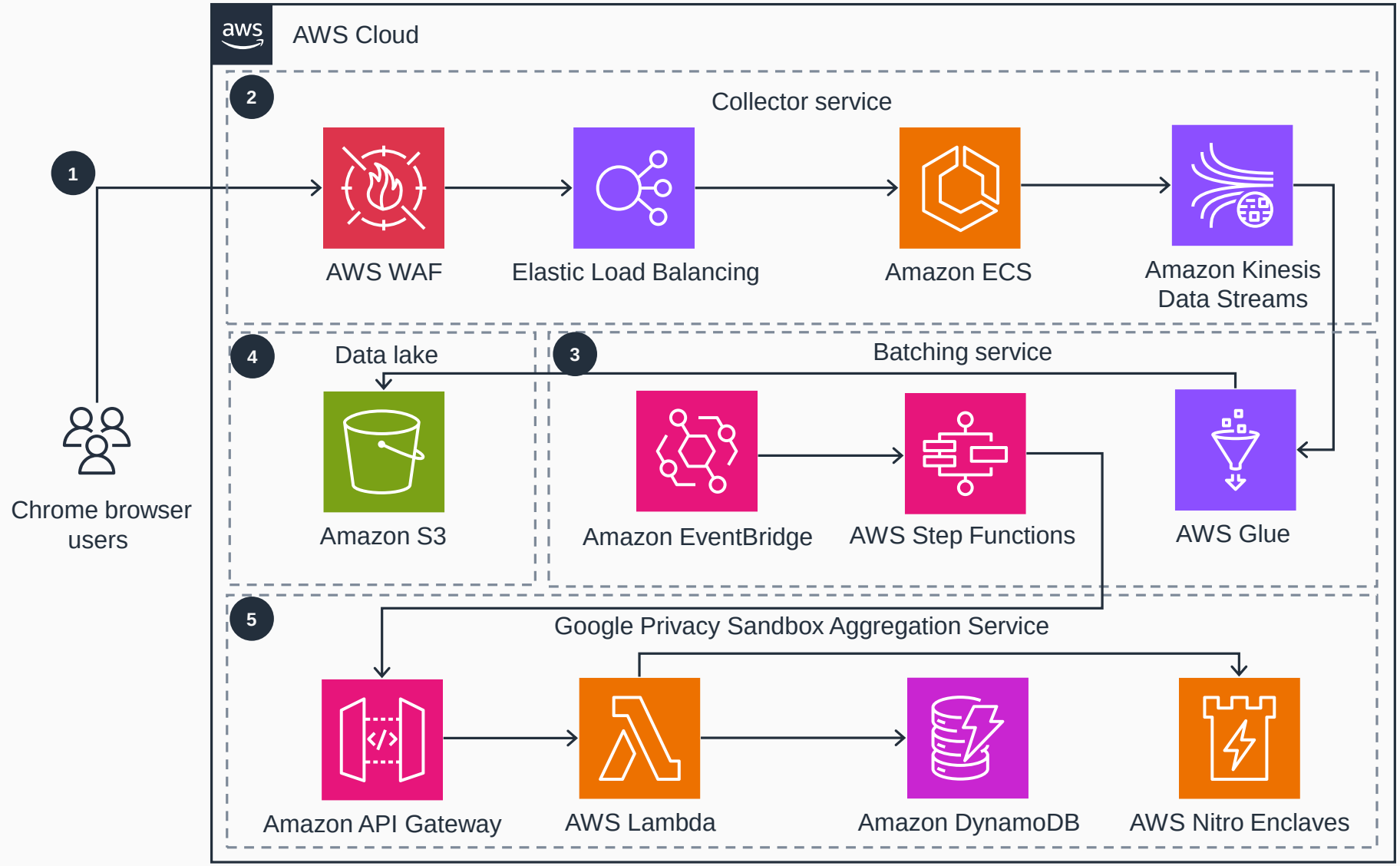
Guidance for Implementing the Google Privacy Sandbox Aggregation Service on AWS

This architecture diagram shows how AWS customers can deploy the Google Privacy Sandbox Aggregation Service on AWS. It also illustrates the necessary infrastructure for collecting and processing reports generated by the Private Aggregation and Attribution Reporting APIs.



1. A Chrome browser user with Privacy Sandbox features enabled is browsing a publisher's site. The user performs an action that causes the Attribution Reporting API or Private Aggregation API to send event-level or aggregated reports to the Collector service.

2. The Collector service exposes a series of well-known URL(s) to collect summary reports and event-level reports from the Chrome browser. **AWS WAF** protects the URLs. **Elastic Load Balancing** distributes traffic to **Amazon Elastic Container Service** (Amazon ECS) and is used to host a service that validates that the requests are well formed. Well-formed requests are sent to **Amazon Kinesis Data Streams**.

3. The Batching service is responsible for preparing the aggregated reports for processing by the Google Privacy Sandbox Aggregation Service. **AWS Glue** reads records from **Kinesis Data Streams** and persists the records to **Amazon Simple Storage Service** (Amazon S3) in JSON and Avro formats. An **AWS Step Functions** is invoked by **Amazon EventBridge** at a set interval to process batches.

4. Reports and event-level data that can be aggregated are stored in **Amazon S3**.

5. The Google Privacy Sandbox Aggregation Service is deployed using the community edition of Terraform, provided as part of the Privacy Sandbox initiative. The Aggregation Service uses **Amazon API Gateway** to receive requests from the **Step Functions** workflow. **AWS Lambda** functions orchestrate processing jobs to produce summary reports. **Amazon DynamoDB** tracks the progress of processing jobs. **AWS Nitro Enclaves** provide a trusted execution environment (TEE) to process reports that can be aggregated.

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AWS Reference Architecture