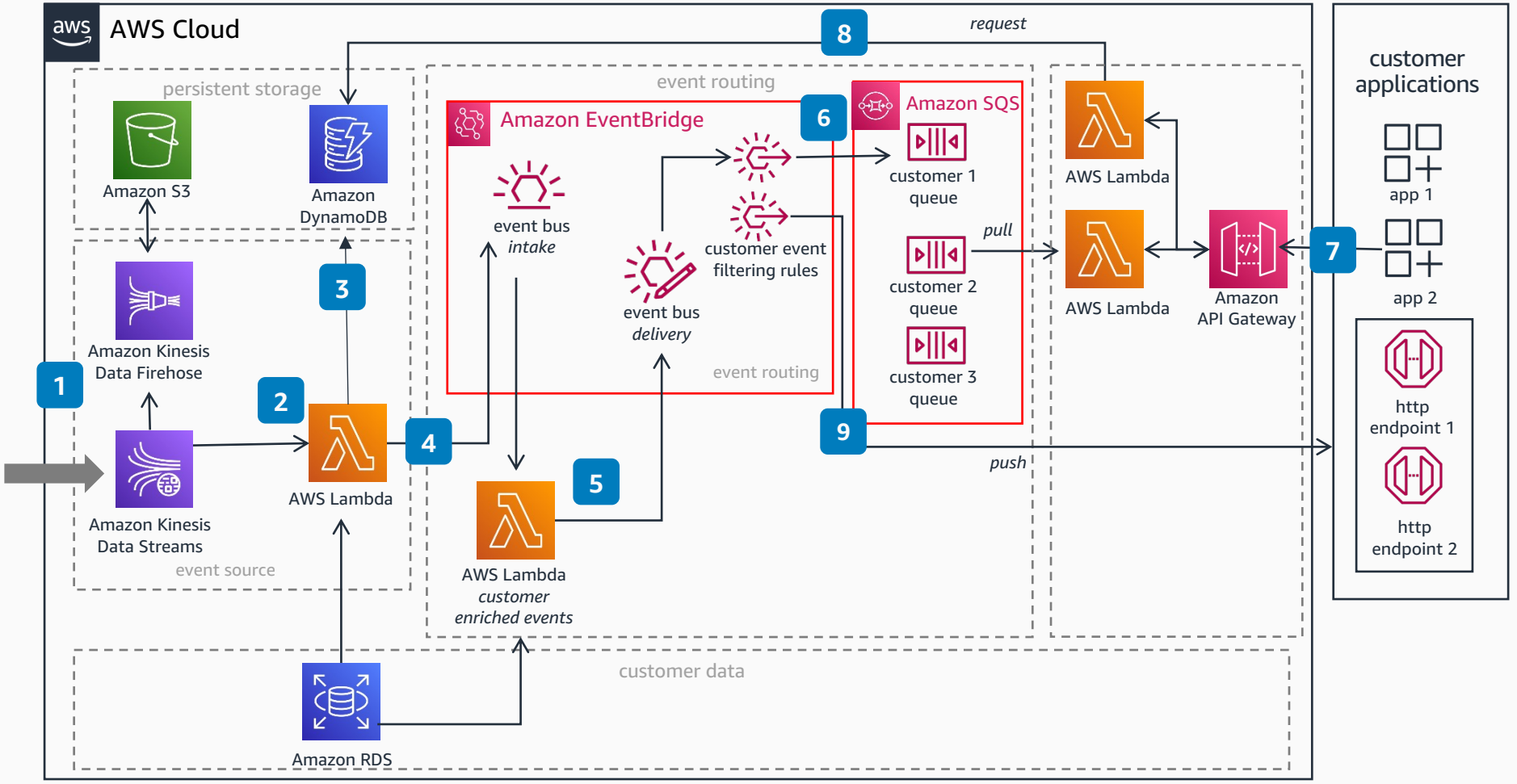
Provide DaaS to Fleet Customers

Build a serverless architecture using Data as a Service (DaaS) to ingest, process, and deliver vehicle data to fleet owner applications based on a data API subscription model.



1. Stream vehicle telemetry and diagnostic events into real-time streaming platforms such as **Amazon Kinesis Data Streams** or **Amazon Managed Streaming for Apache Kafka** (Amazon MSK). Store raw events in **Amazon Simple Storage Service** (Amazon S3) for long-term retention.
2. **AWS Lambda** or **AWS Step Functions** process streaming events such as event validation, transformation, filtering, and more. **Amazon Relational Database Service** (RDS) contains reference data—including subscription status, event schema, and event types—required to process events.
3. Lambda stores processed events in **Amazon DynamoDB**. **DynamoDB** serves as data layer for on-demand request APIs.
4. Lambda sends transformed events to the **Amazon EventBridge** default event bus.
5. **Lambda** retrieves events from the **EventBridge** default event bus, enriches them with customer-specific data stored in **Amazon RDS**, and sends them to a delivery event bus.
6. For telemetry events, **EventBridge** rules process the matching events and route them to customer-specific **Amazon Simple Queue Service** (Amazon SQS) queues to be buffered until consumed.
7. Fleet applications make an API call to **Amazon API Gateway** which invokes **Lambda** to process the API requests.
8. For real-time streaming data, **Lambda** pulls events from **Amazon SQS** queues. For on-demand requests, **Lambda** reads events from a **DynamoDB** table.
9. Alerts and other time-sensitive events are routed to customer-specific HTTP endpoints using an **EventBridge** API target.

Reviewed for technical accuracy February 16, 2023

AWS Reference Architecture

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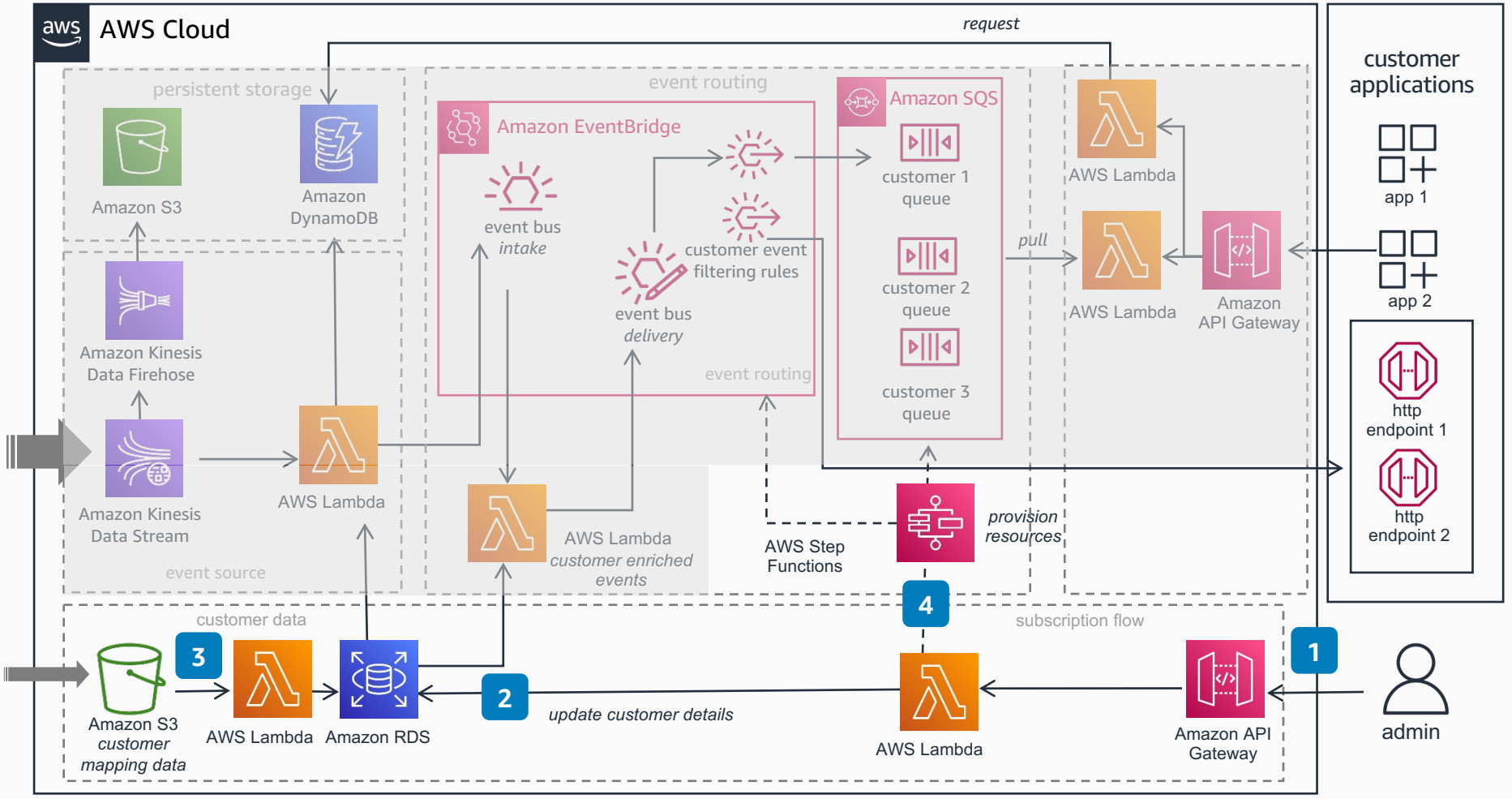

1. The admin invokes Subscription API using **Amazon API Gateway** to onboard new customers requesting subscriptions for specific vehicle data packages (for example, VIN, Customer ID, alerts, or data from Track & Trace, telematics, and diagnostics).
2. **AWS Lambda** stores customer data subscription request details in the **Amazon Relational Database Service** (Amazon RDS) database.
3. A bulk or batch reference data point such as Customer <-> Vehicle VIN mapping or custom event schema is uploaded or updated into an **Amazon Simple Storage Service** (Amazon S3) bucket and **Lambda** loads it into the database.
4. **Lambda** invokes workflow to provision customer-specific AWS resources. **AWS Step Functions** initiate resource provisioning (for example, creating a customer-specific **Amazon Simple Queue Service** (Amazon SQS) queue or **Amazon EventBridge** rules).

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AWS Reference Architecture