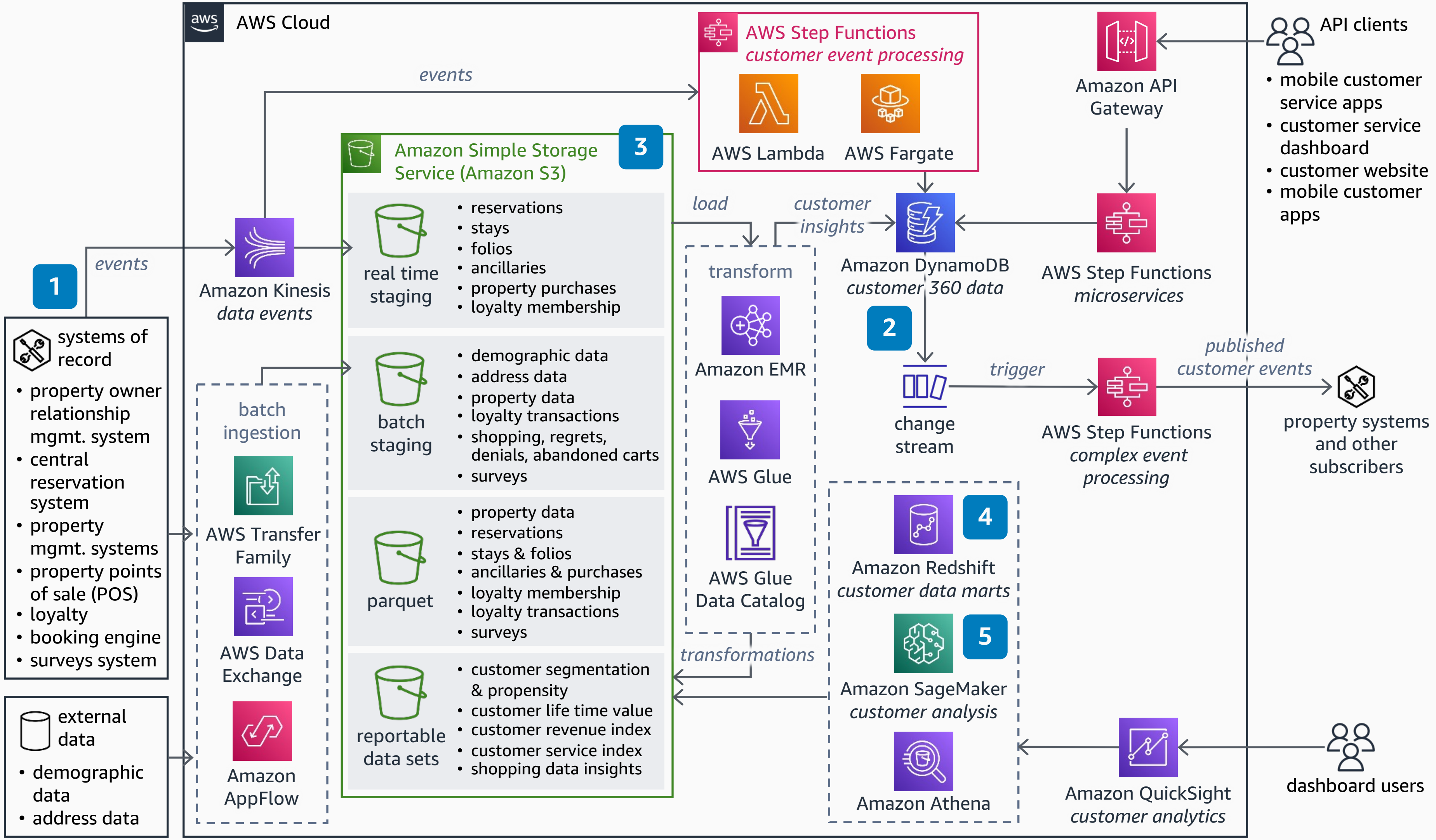
Customer Data Platform for Lodging

Build a data platform to serve both operational and analytics needs using open data standards, purpose-built databases, and extensible serverless architecture.



AWS Cloud

1

systems of record

- property owner relationship mgmt. system
- central reservation system
- property mgmt. systems
- property points of sale (POS)
- loyalty
- booking engine
- surveys system

external data

- demographic data
- address data

events

Amazon Kinesis *data events*

events

batch ingestion

AWS Transfer Family

AWS Data Exchange

Amazon AppFlow

Amazon Simple Storage Service (Amazon S3)

3

real time staging

- reservations
- stays
- folios
- ancillaries
- property purchases
- loyalty membership

batch staging

- demographic data
- address data
- property data
- loyalty transactions
- shopping, regrets, denials, abandoned carts
- surveys

parquet

- property data
- reservations
- stays & folios
- ancillaries & purchases
- loyalty membership
- loyalty transactions
- surveys

reportable data sets

- customer segmentation & propensity
- customer life time value
- customer revenue index
- customer service index
- shopping data insights

load

transform

Amazon EMR

AWS Glue

AWS Glue Data Catalog

transformations

AWS Step Functions *customer event processing*

AWS Lambda

AWS Fargate

customer insights

Amazon DynamoDB *customer 360 data*

2

change stream

trigger

Amazon API Gateway

AWS Step Functions *microservices*

AWS Step Functions *complex event processing*

published customer events

property systems and other subscribers

API clients

- mobile customer service apps
- customer service dashboard
- customer website
- mobile customer apps

Amazon Redshift *customer data marts*

4

Amazon SageMaker *customer analysis*

5

Amazon Athena

Amazon QuickSight *customer analytics*

dashboard users

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AWS Reference Architecture

Lodging company initiatives to build operations data stores and related services typically do not adapt to change because of rigid schemas and long implementation times.

In addition, siloed systems for operations and analytics do not work well together, and building these systems on premises prevents scaling to add new domains.

This data platform architecture helps relieve and eventually replace the on-premises data platform load, leading to cost savings and an agile environment.

1 Build basic data as a service with the most important domains (properties, reservations, stays, and loyalty), with the key tenet of separating storage from compute.

2 Use purpose-built databases and serverless architecture to deliver microservices and events for the operational data store. These serverless and fully-managed services allow customers to scale based on adoption. This architecture enables customers to replace expensive on-premises operational databases, service-oriented architecture (SOA) infrastructure, and message-oriented middleware.

3 Use open standards to build the data lake using the same data as the operational data platform. Use a read pattern schema to make the raw data and curated data readily available for all user roles seamlessly.

4 Build standard enterprise data warehouse schemas and data marts in **Amazon Redshift** for known and well-used usage patterns. For one-time requirements, publish the data catalog and use **Amazon Athena** for analysis, directly using the data lake. Customers can also extend the data warehouse based on their specific needs.

5 Use **Amazon SageMaker** to provide standard artificial intelligence (AI) and machine learning (ML) models for customer segmentations and lifetime value. Customers can also use **Amazon SageMaker** to build their own models on top of the data.