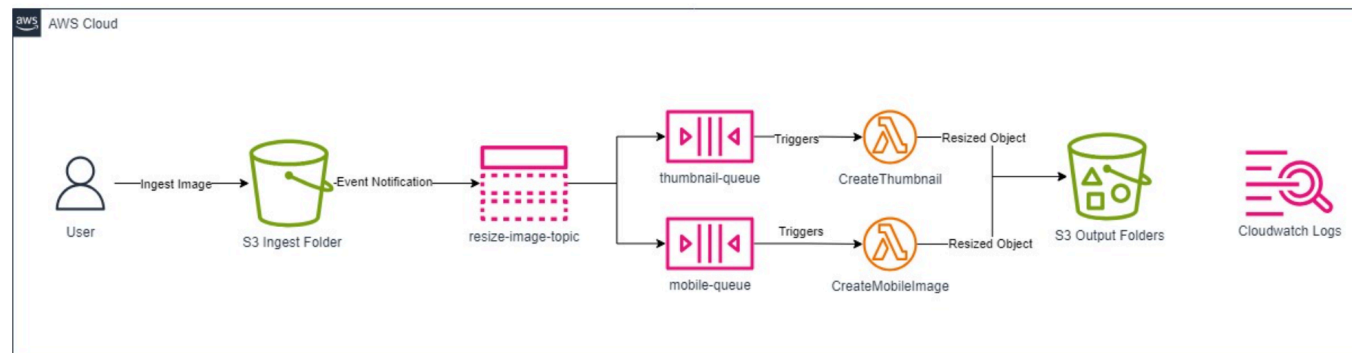


# SESSION-11: SERVERLESS

# Advantages of Serverless

- No infrastructure to provision or manage
- Scales automatically by unit of consumption
- Consumption-based pricing
- Built-in security, highly available compute



# AWS Serverless Services

## Compute



AWS Lambda



AWS Fargate

## API proxy



Amazon API  
Gateway

## Storage



Amazon Simple  
Storage Service  
(Amazon S3)

## Database

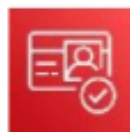


Amazon  
DynamoDB



Amazon  
Aurora  
Serverless

## Authentication



Amazon Cognito

## Interprocess messaging



Amazon Simple  
Notification Service  
(Amazon SNS)



Amazon Simple  
Queue Service  
(Amazon SQS)

## Orchestration



AWS Step Functions

## Analytics



Amazon  
Kinesis



Amazon  
Athena

# Amazon API Gateway

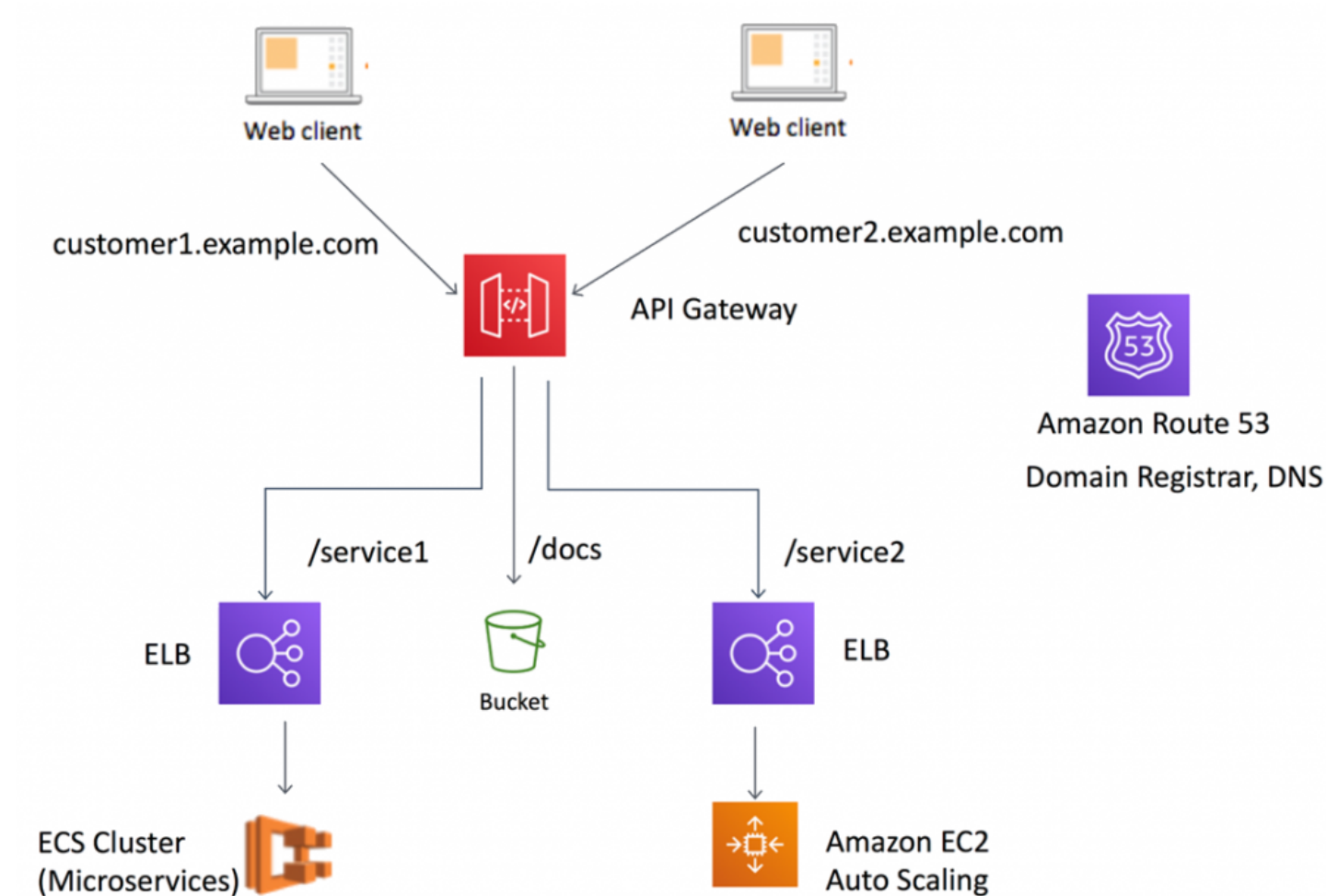
- Create an entry point for your applications.
- Process thousands of concurrent API calls.
- Choose internet-facing or internal only.



# Amazon API Gateway - Features

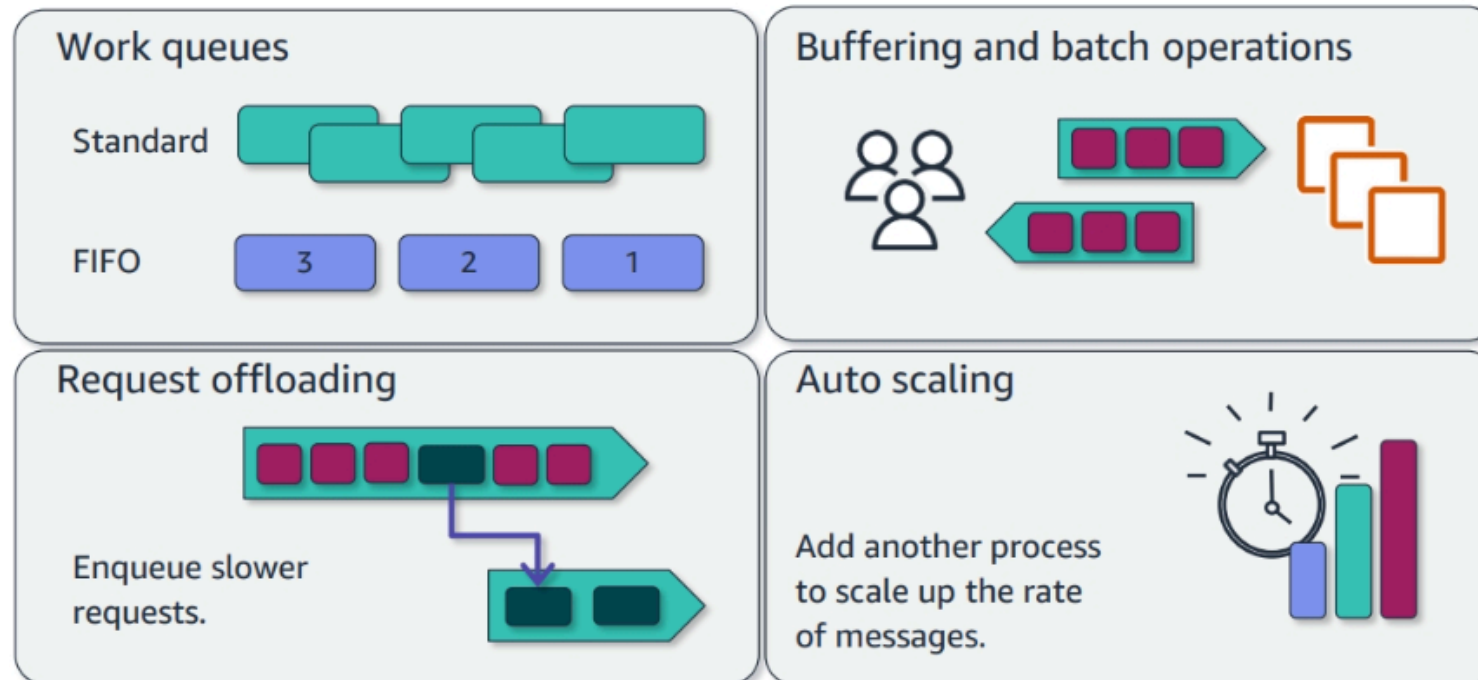
- Creates a unified API frontend for multiple microservices.
- Provides distributed denial-of-service (DDoS) protection and throttling for your backend.
- Authenticates and authorizes requests to a backend
- Throttles, meters, and monetizes API usage by third-party developers.

# Amazon API Gateway - Example



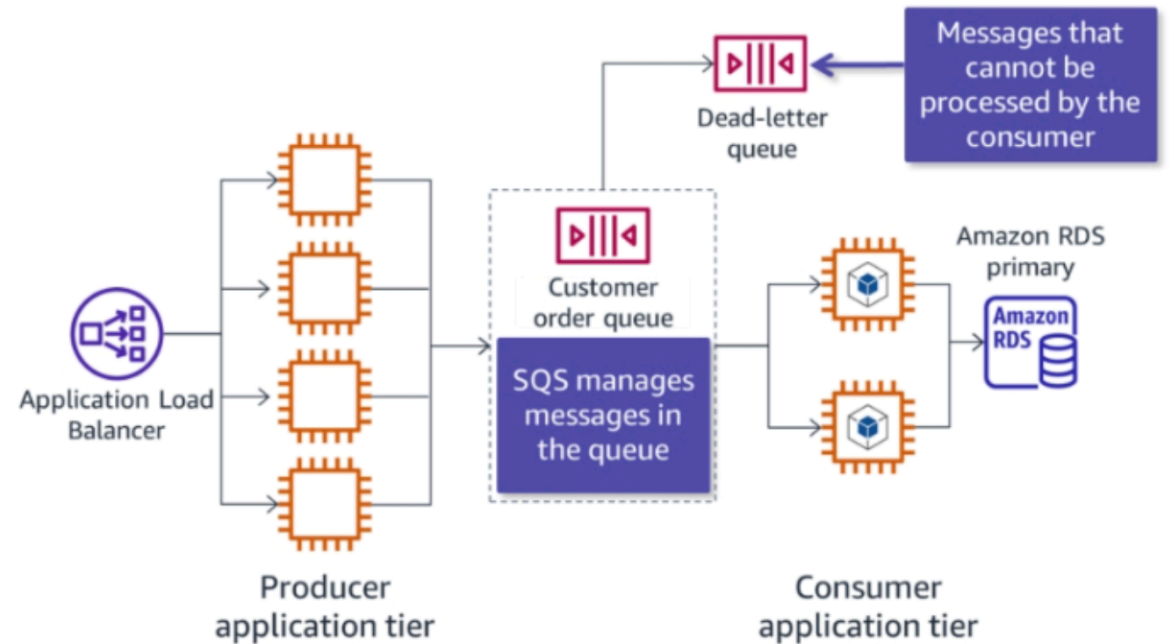
# Amazon SQS

- Fully managed message queueing service.
- Stores messages until they are processed and deleted.
- Acts as a buffer between senders and receivers.



# Amazon SQS - Loose Coupling

- Loosely couples application components.
- Uses asynchronous processing.
- Creates tolerance for failed steps.
- Absorbs demand spikes.



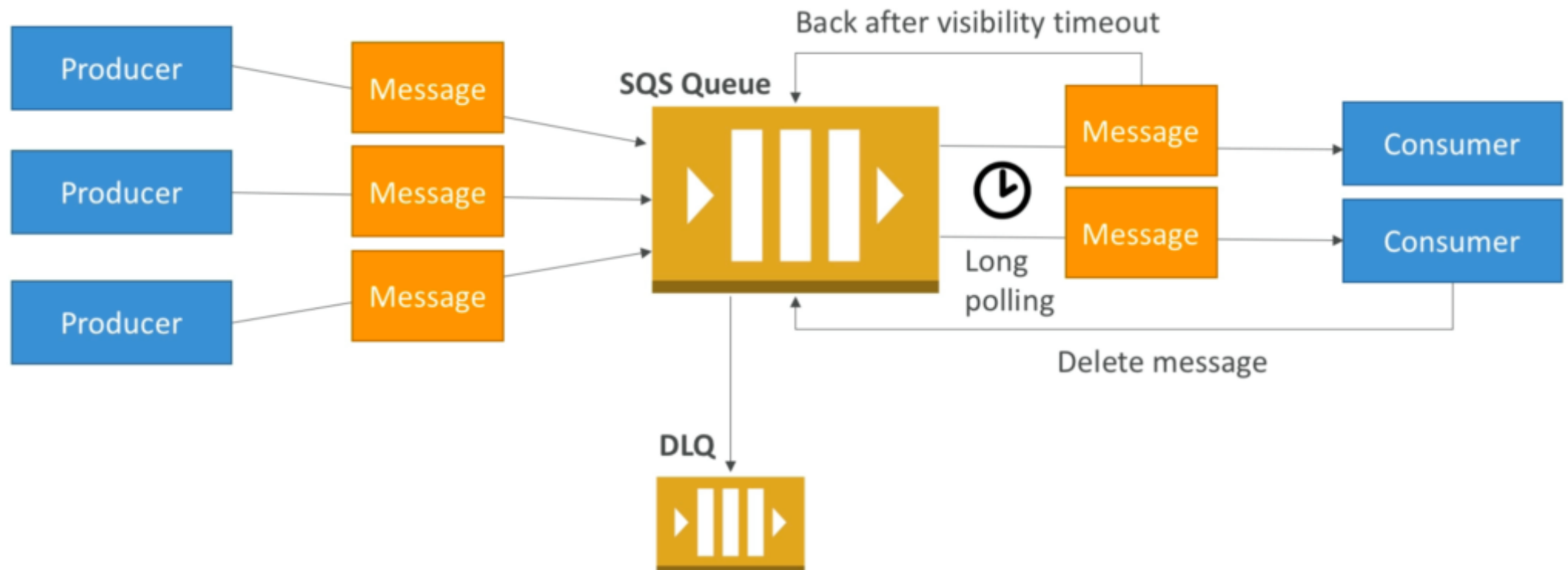


# Amazon SQS - Queue Types

Characteristic	Standard	FIFO
Record Order	Order is not guaranteed	Order is guaranteed per group ID
Delivery	Messages may be delivered more than once	Messages are delivered only once. There are no duplicate messages introduced to the queue
Transaction Throughput	Nearly unlimited messages per second	FIFO queues support up to 300 messages per second, per API action without batching, or 3,000 with batching

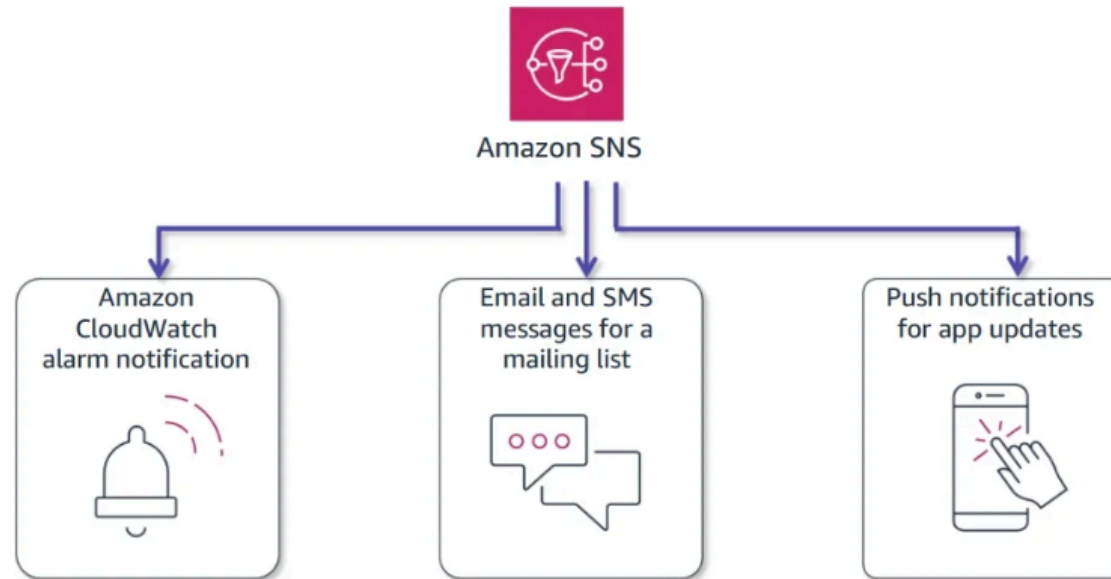


# Amazon SQS - Dead Letter Queue and Polling

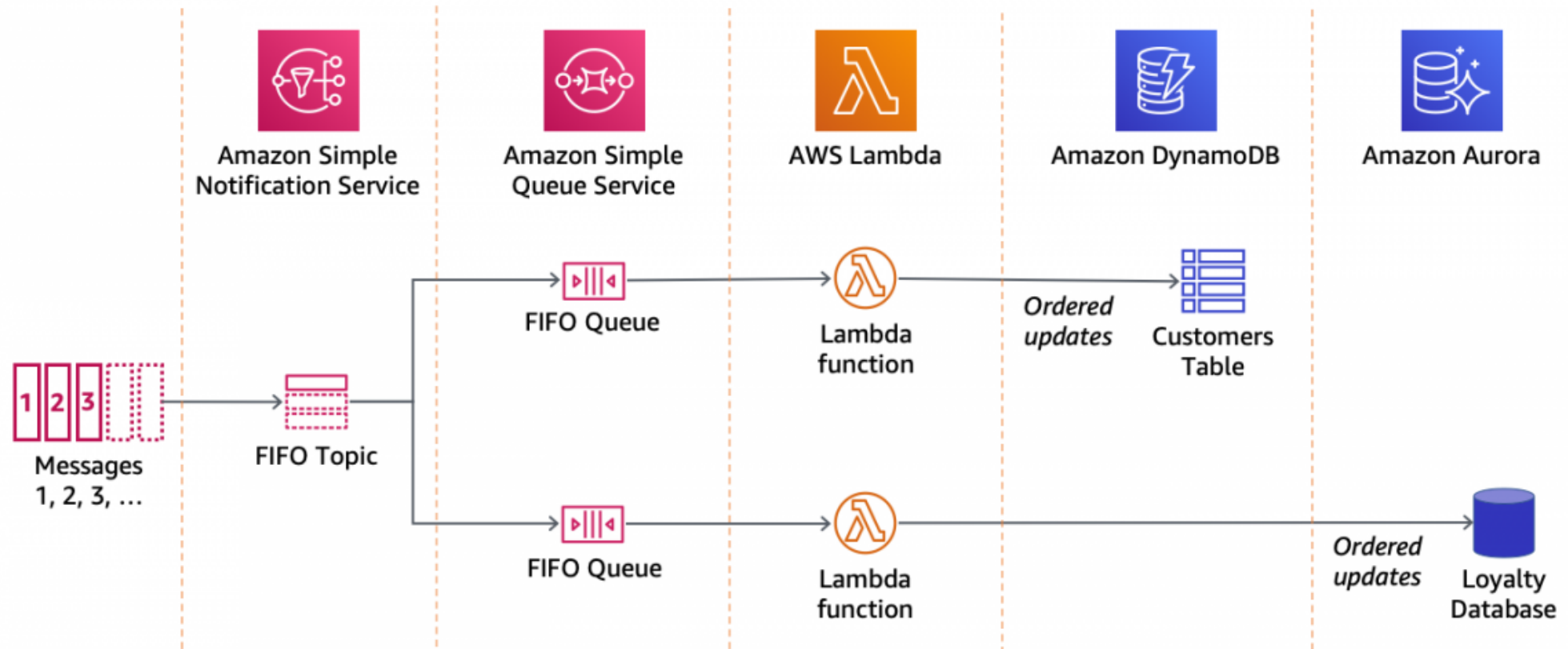


# Amazon SNS

- Subscriber types: Email, SMS, HTTP(S), AWS Lambda, Amazon SQS, Kinesis Data Firehose
- Single published message
- No recall options
- Standard or FIFO Topics



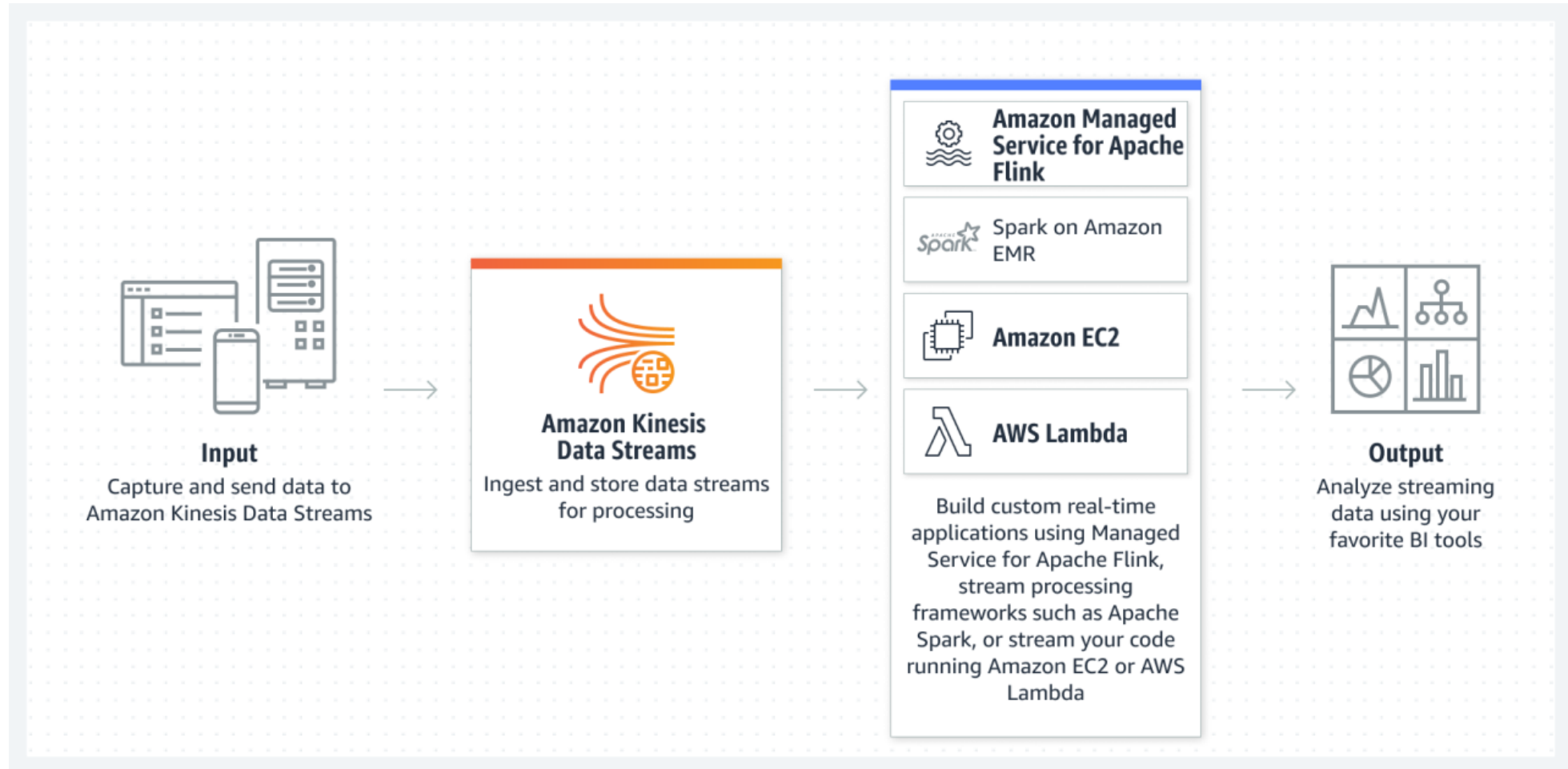
# Amazon SNS Publish to Multiple SQS Queues



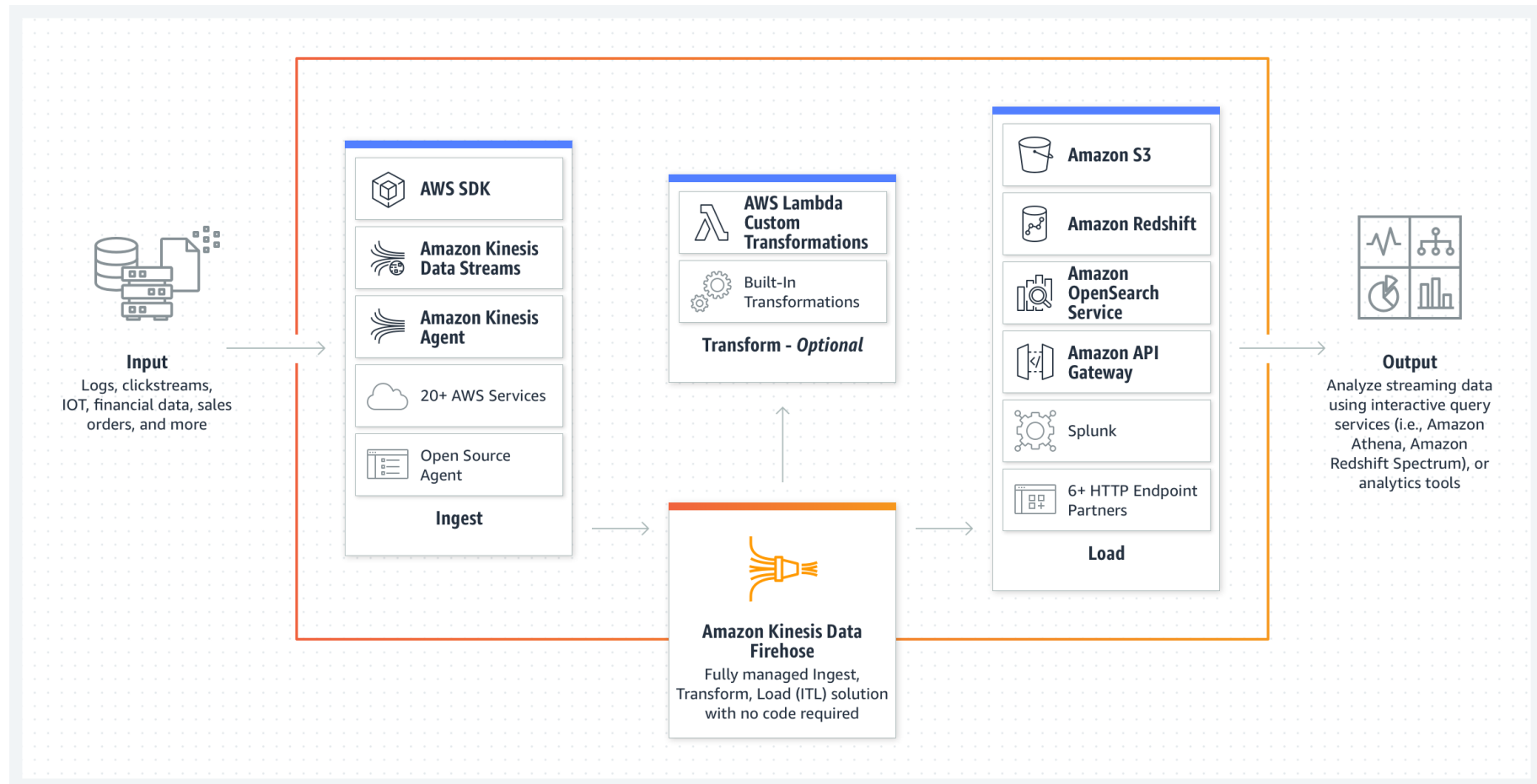
# SNS and SQS

Features	Amazon SNS	Amazon SQS
Message persistence	No	Yes
Delivery mechanism	Push (passive)	Poll (active)
Producer and consumer	Publisher and subscriber	Send or receive
Distribution model	One to many	One to one

# Amazon Kinesis Data Streams

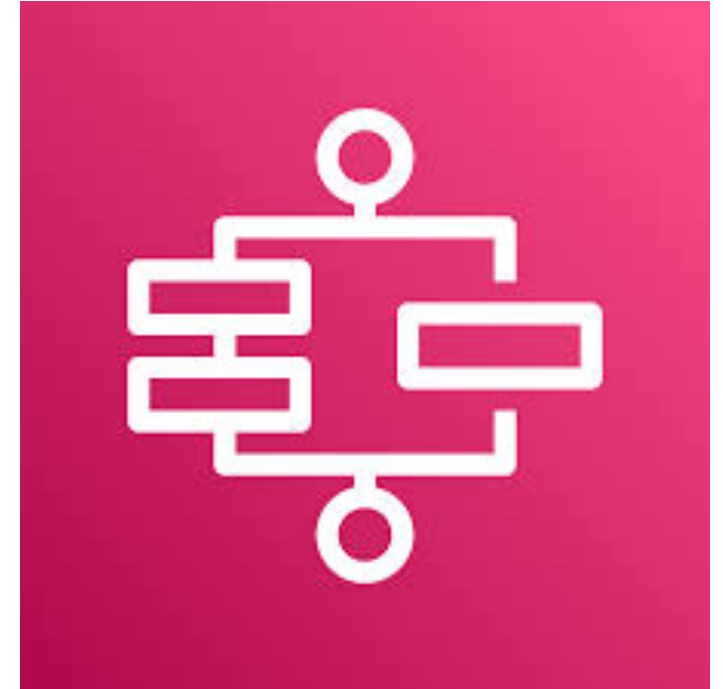


# Amazon Kinesis Data Firehose



# Amazon Step Functions

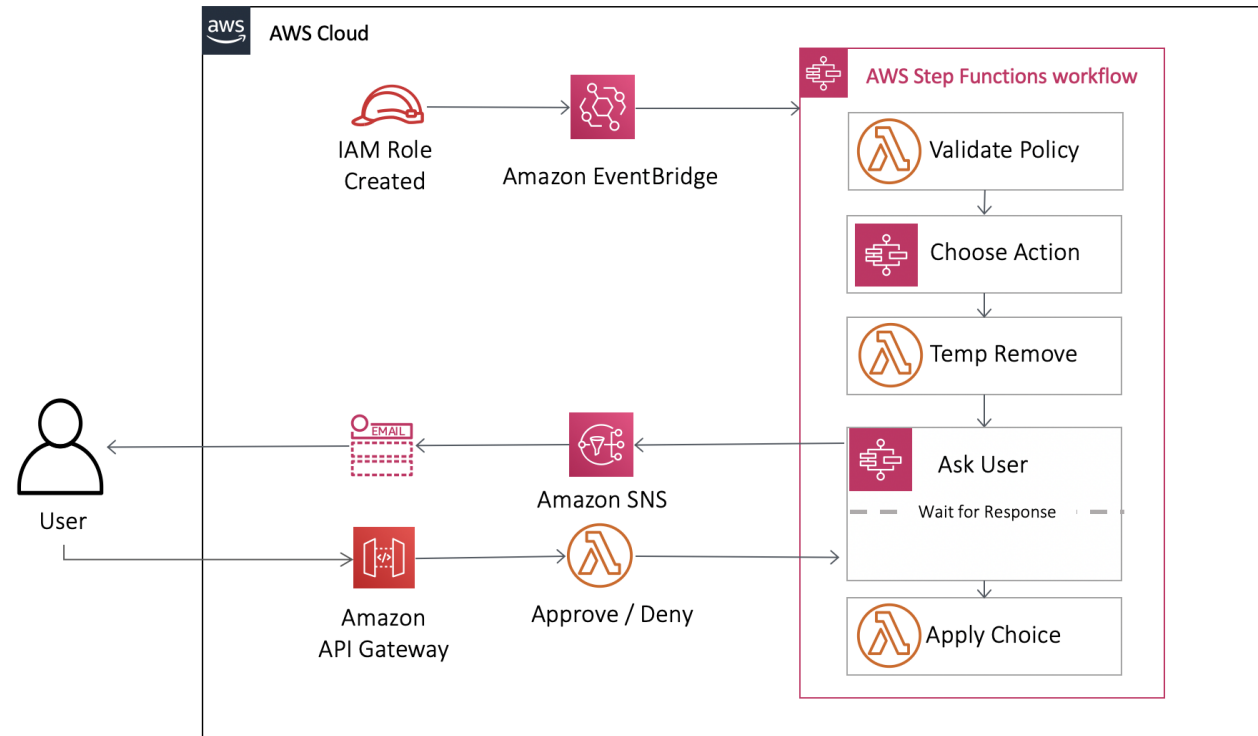
- Coordinates microservices using visual workflows
- Permits you to step through the functions of your application
- Automatically initiates and tracks each step
- Provides simple error catching and logging if a step fails





# Amazon Step Functions - Sample Architecture

- Step Functions supports the following state types: Task, Choice, Fail or Succeed, Pass, Wait, Parallel and Map



**THANKS FOR LISTENING**