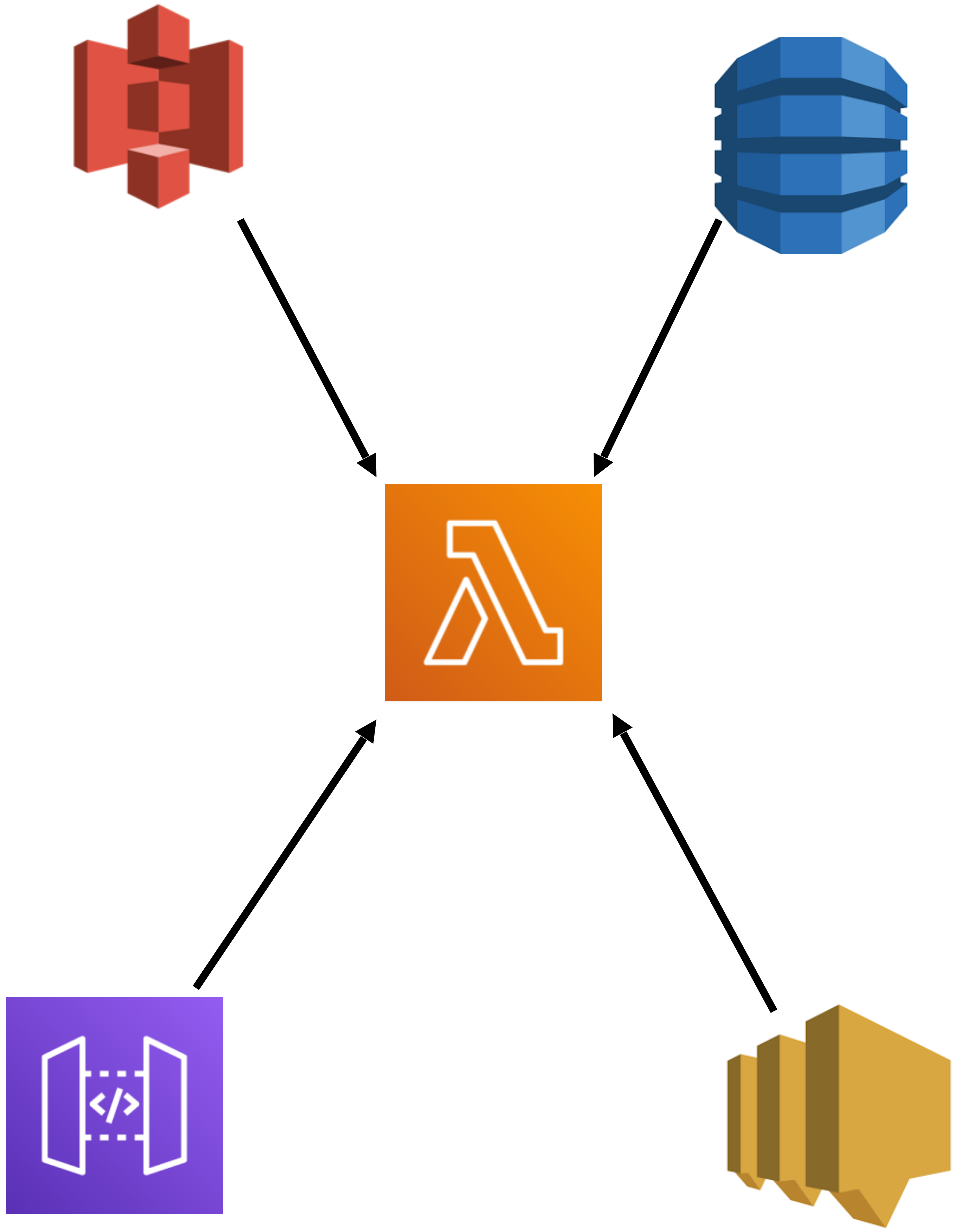
Serverless

IaaS

BaaS



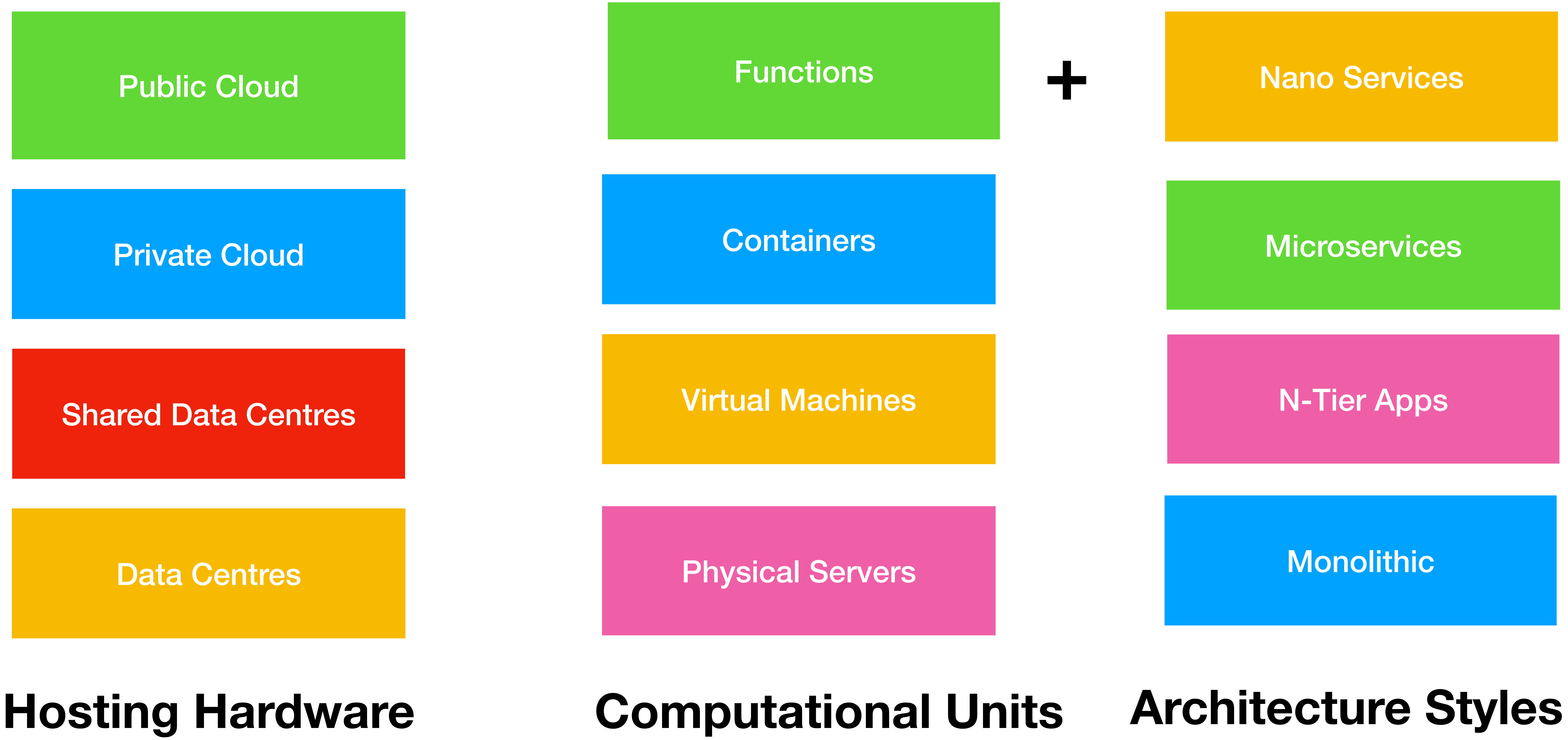
Speed to market

Low infrastructure cost

Scalability and Reliability

Usage based cost

The Evolution



Public Cloud

Private Cloud

Shared Data Centres

Data Centres

Hosting Hardware

Functions

Containers

Virtual Machines

Physical Servers

Computational Units

+

Nano Services

Microservices

N-Tier Apps

Monolithic

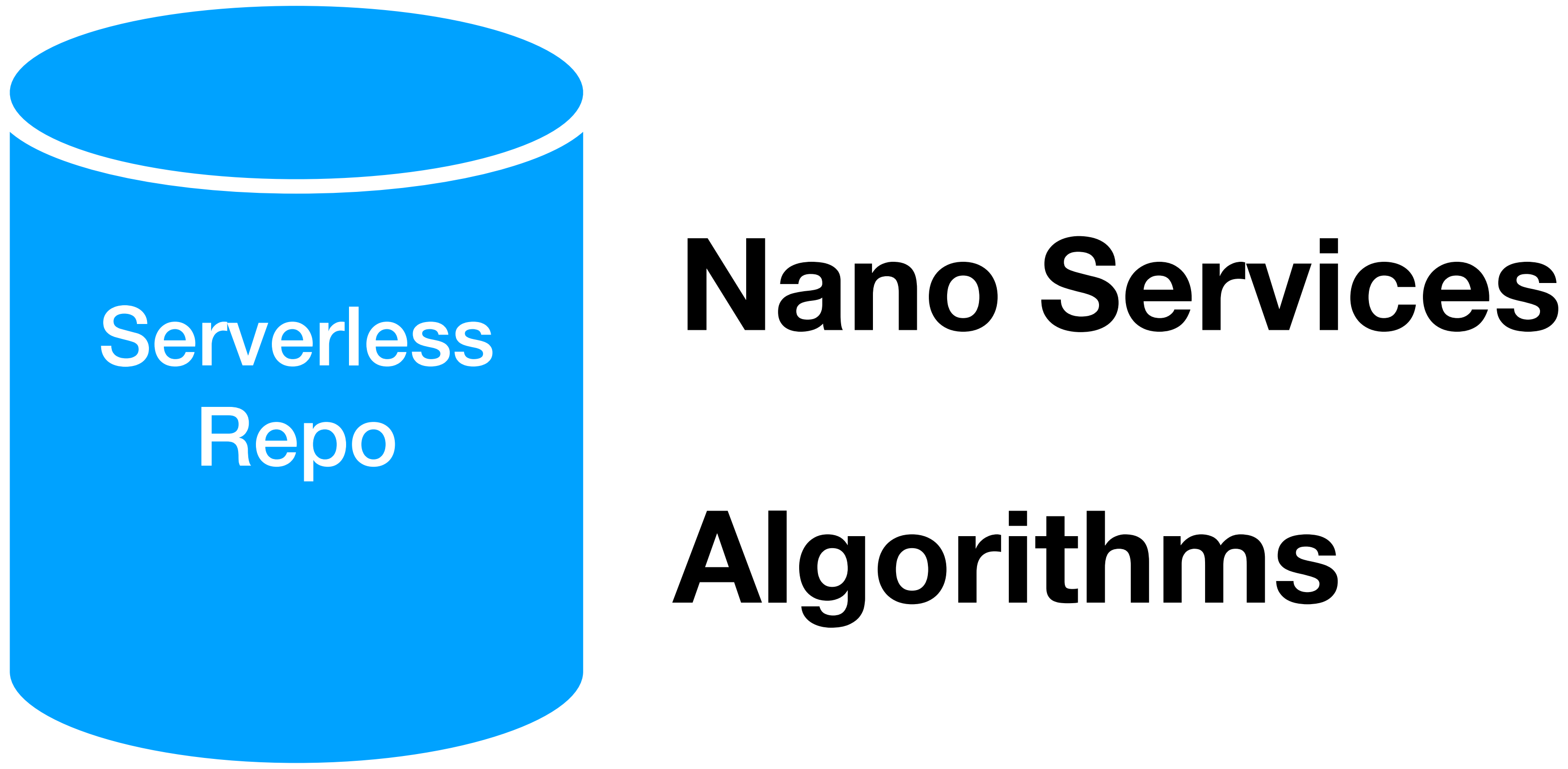
Architecture Styles

Nano Services

Do one thing

Be more useful than the cost incurred

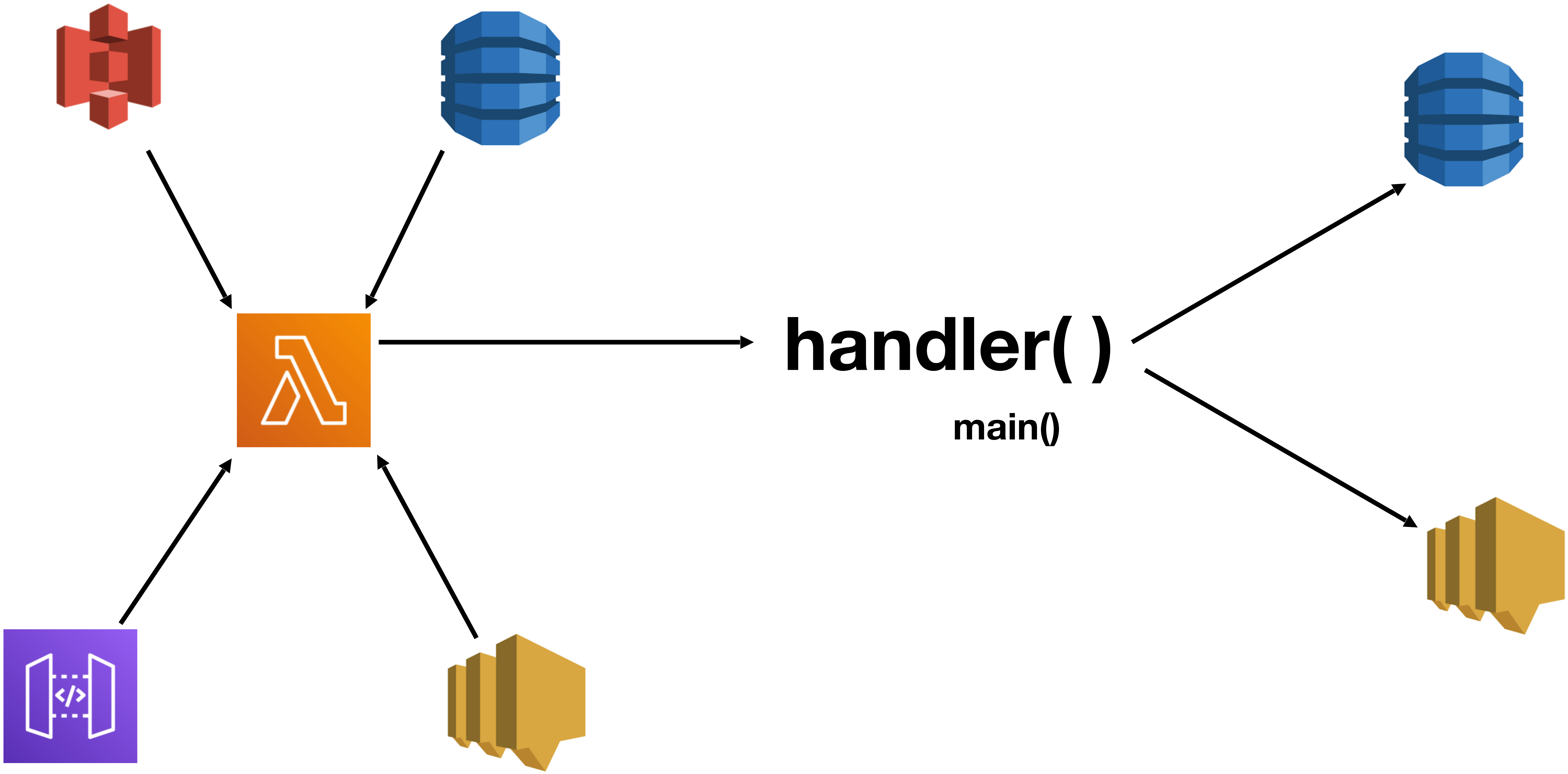
Async Event Based Triggers



Serverless Repo

Nano Services

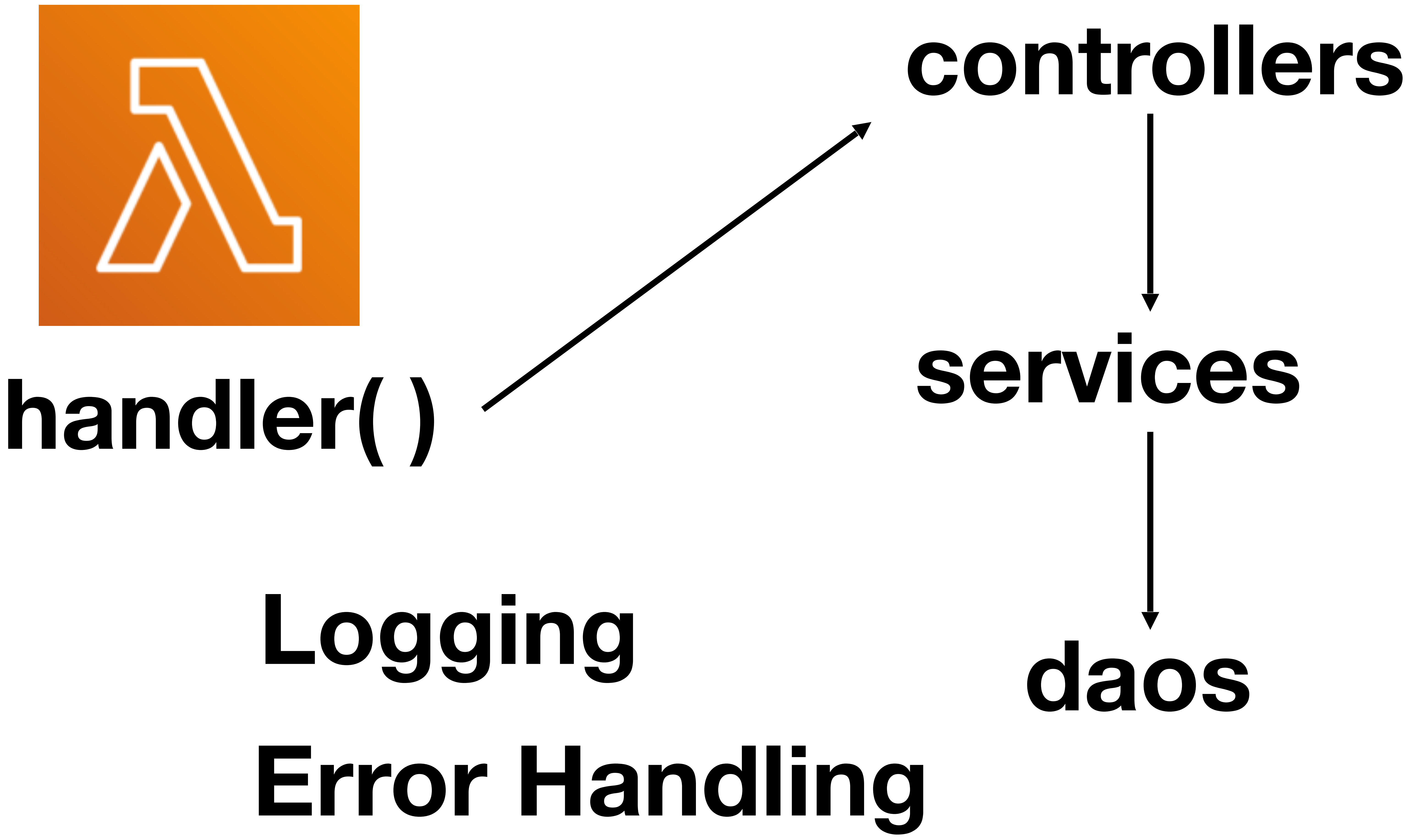
Algorithms



handler( )

main()

FAAS



handler( )

controllers

services

daos

Logging

Error Handling

IDE

Maven

Git

Deployment

SAM

Cloud Formation

Zip

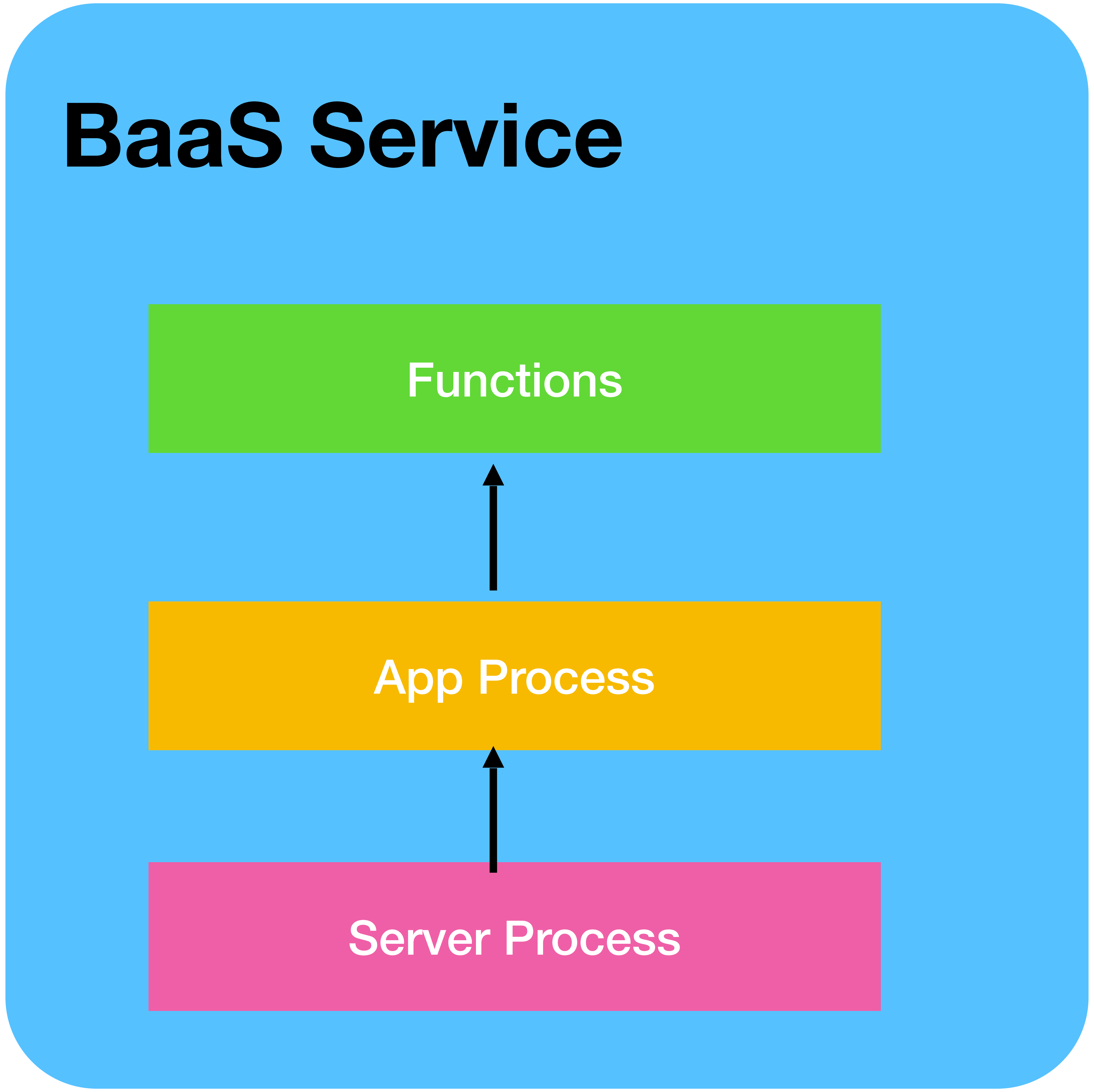
Upload to S3

Create IAM Roles

Create Resources

Create Functions

Configure Permissions

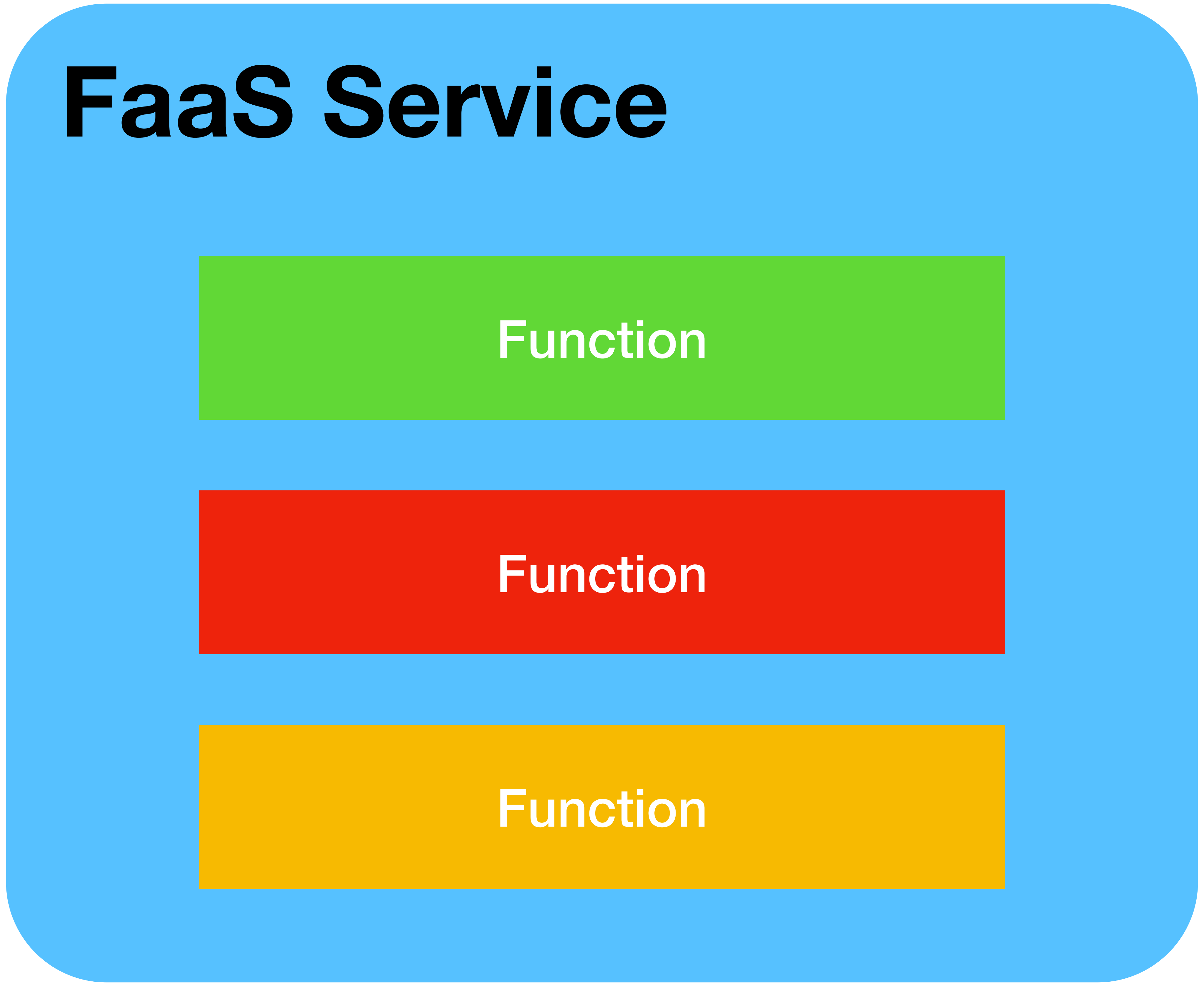


BaaS Service

Functions

App Process

Server Process



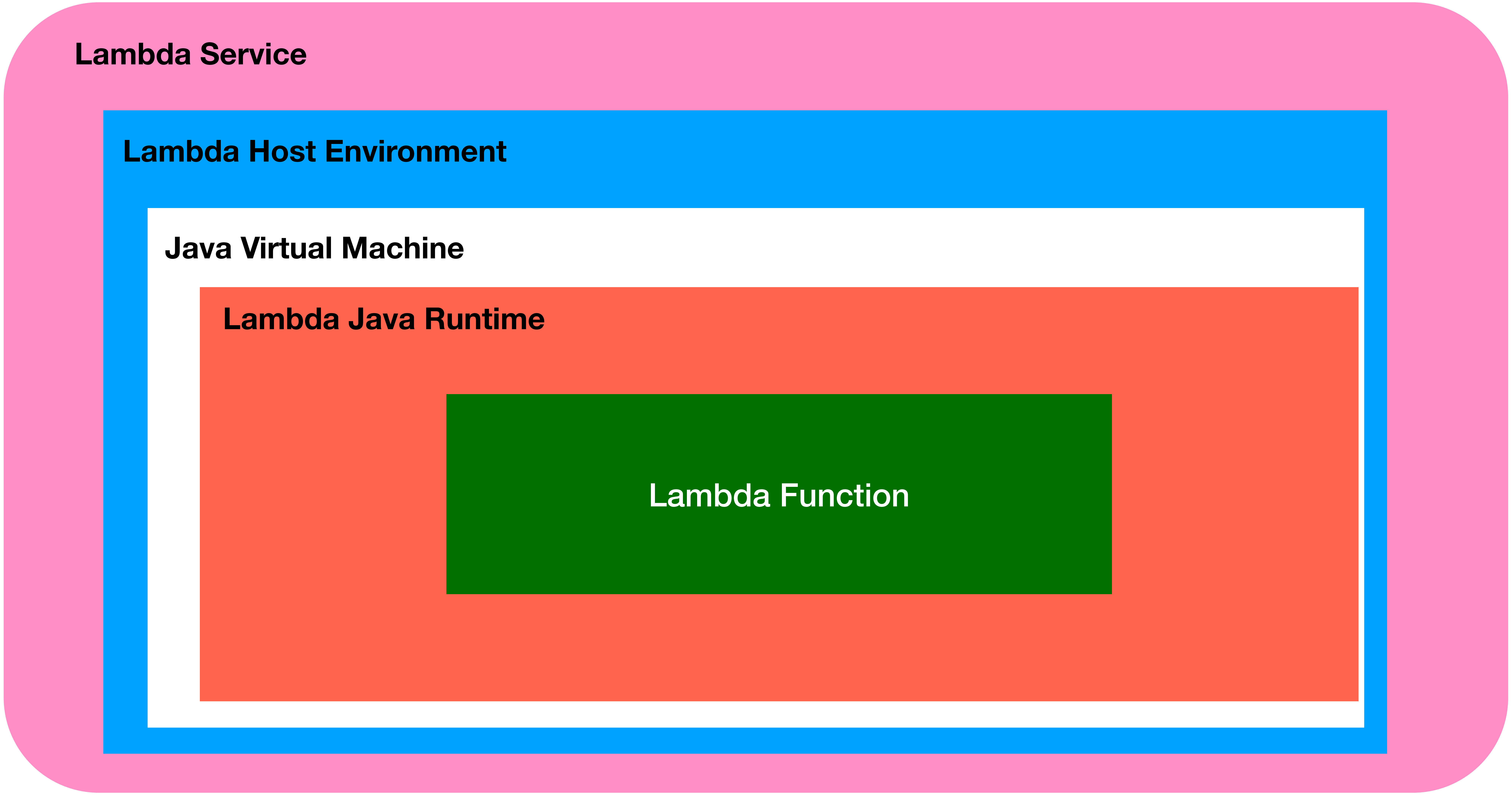
FaaS Service

Function

Function

Function

Function



Lambda Service

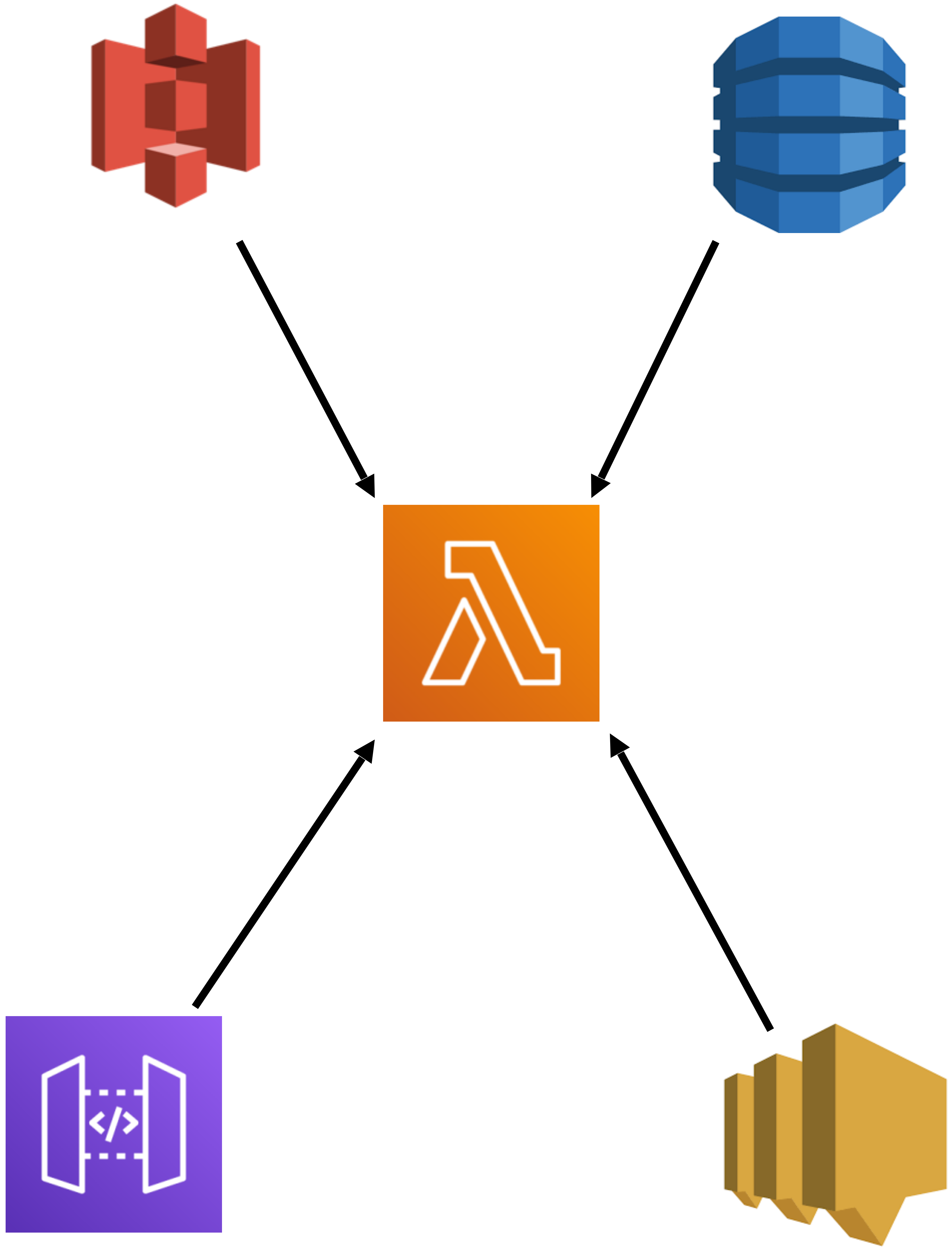
Lambda Host Environment

Java Virtual Machine

Lambda Java Runtime

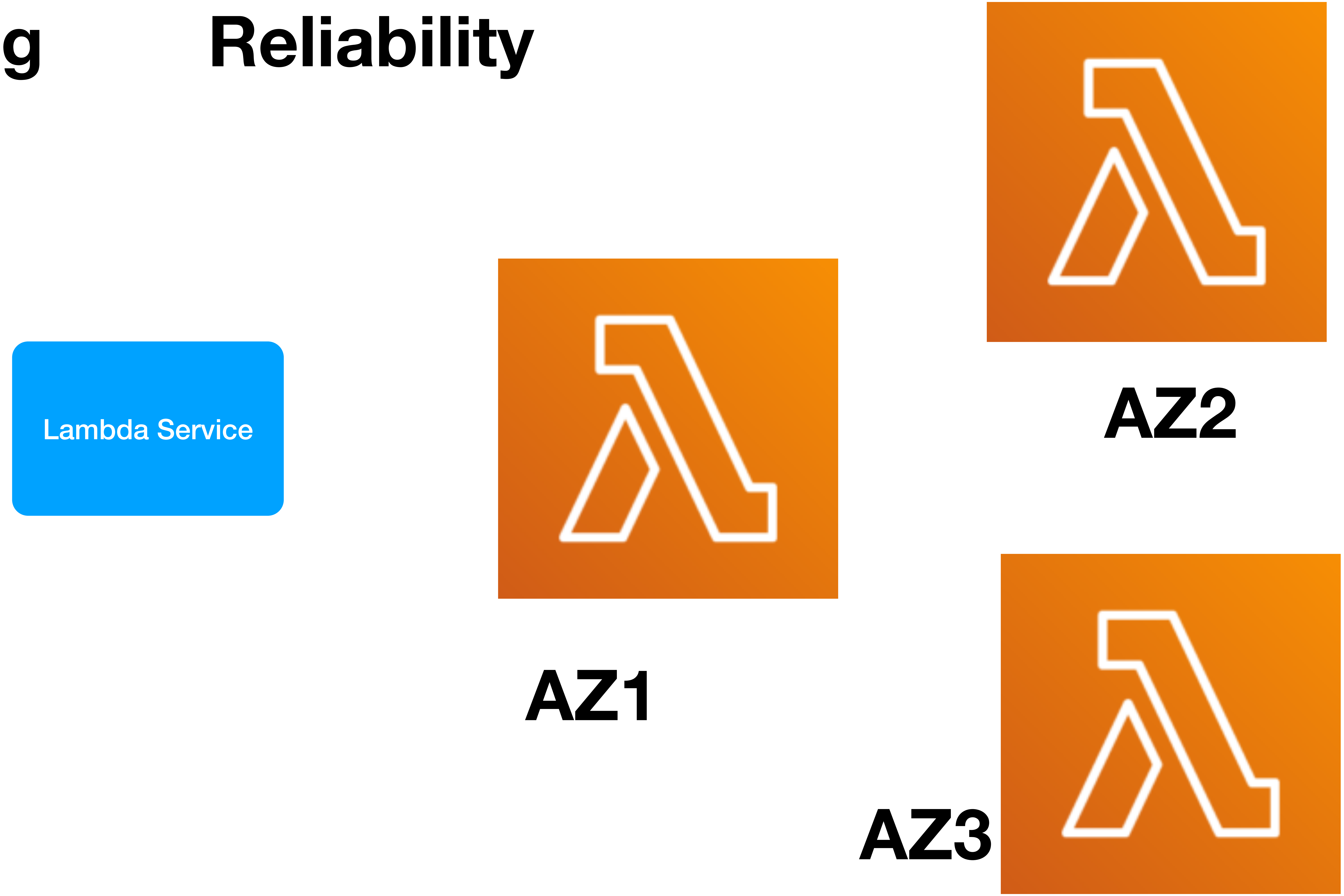
Lambda Function

Invocation



Scaling

Reliability



Lambda Service

AZ1

AZ2

AZ3

Limits

1000 executions at a time

4 KB

64 MB for Sync

256 KB for ASync

Pricing

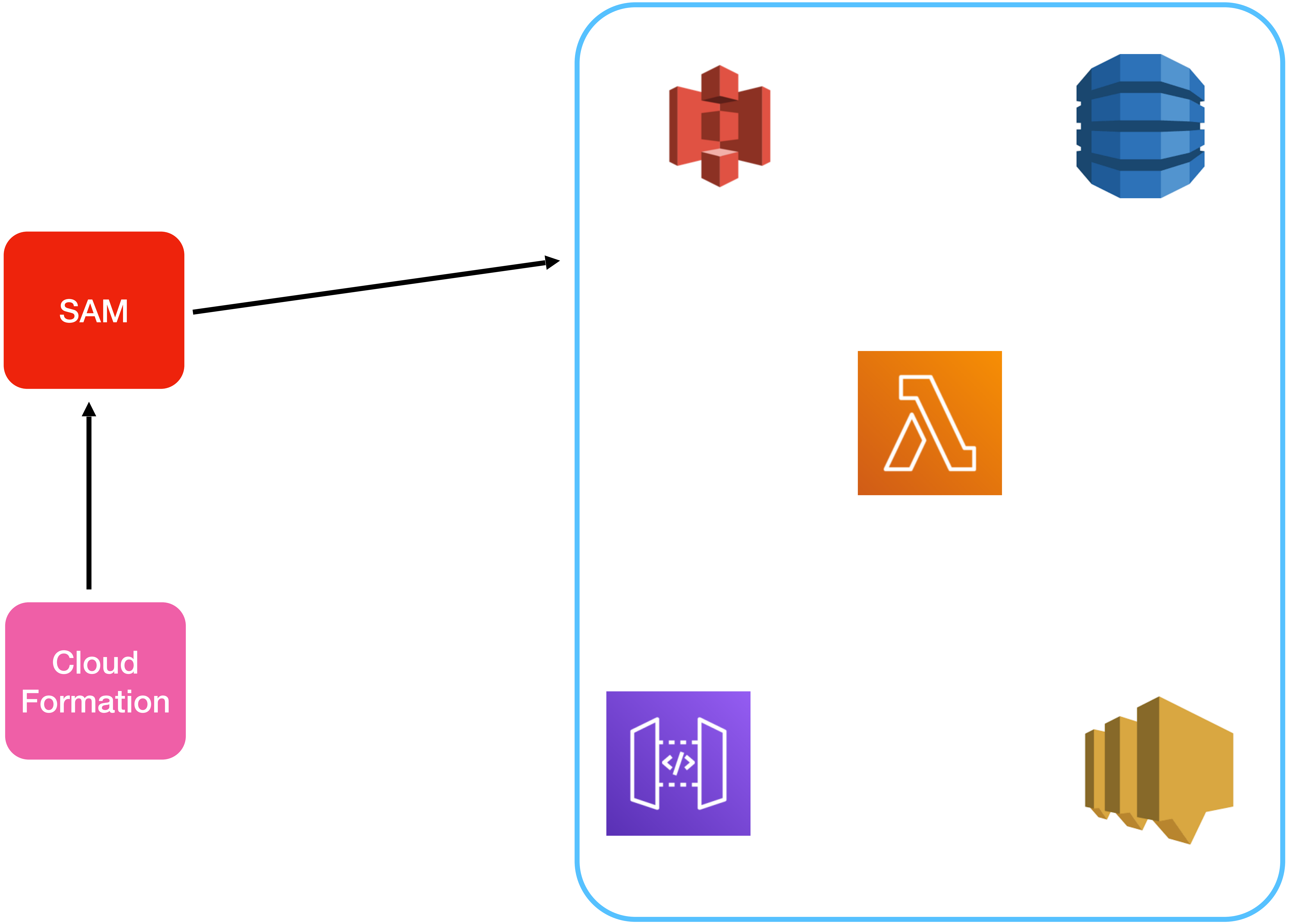
Time rounded to closest milli seconds

And the memory we allocate

GB-Sec

1000000

400000

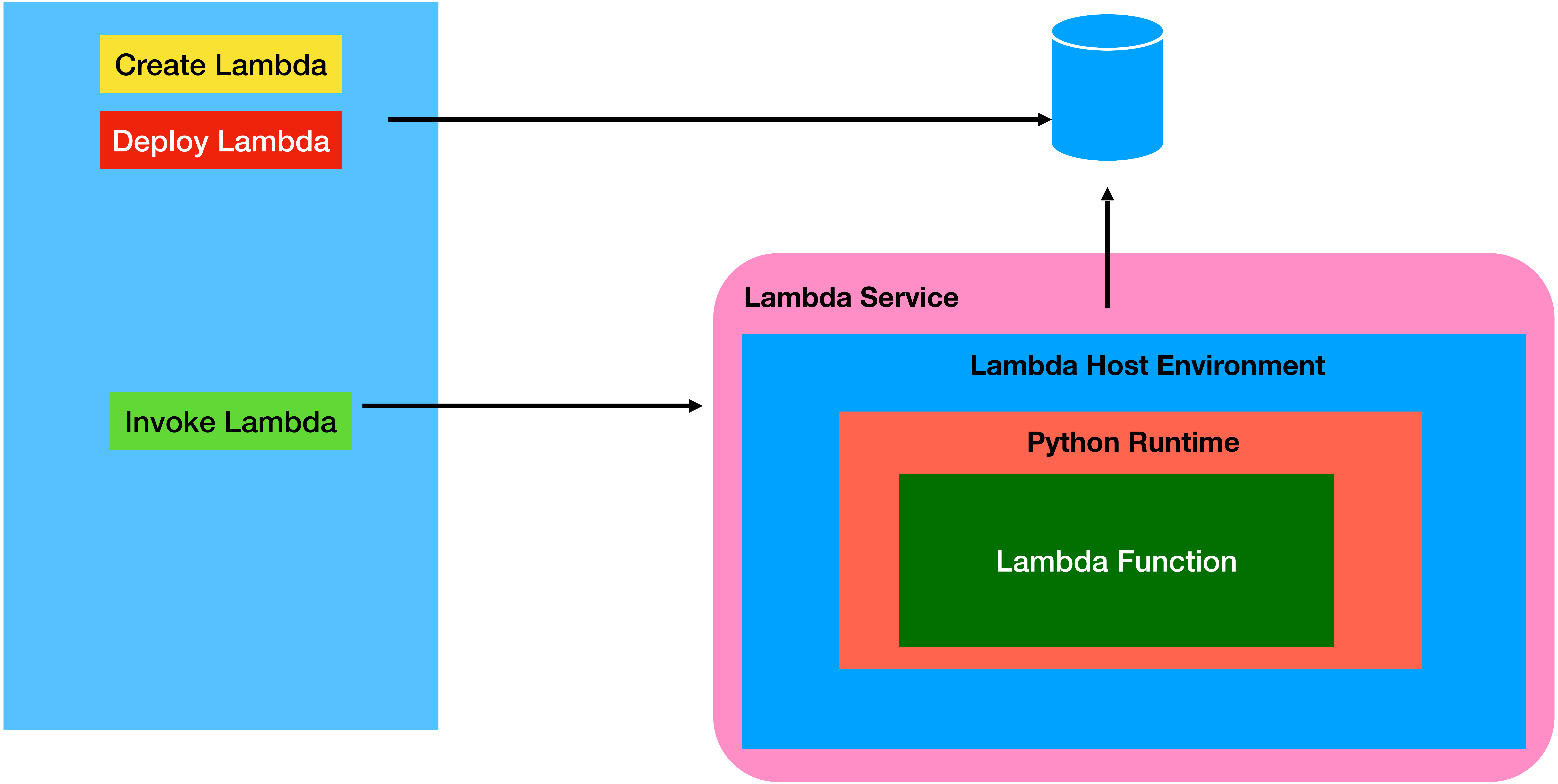


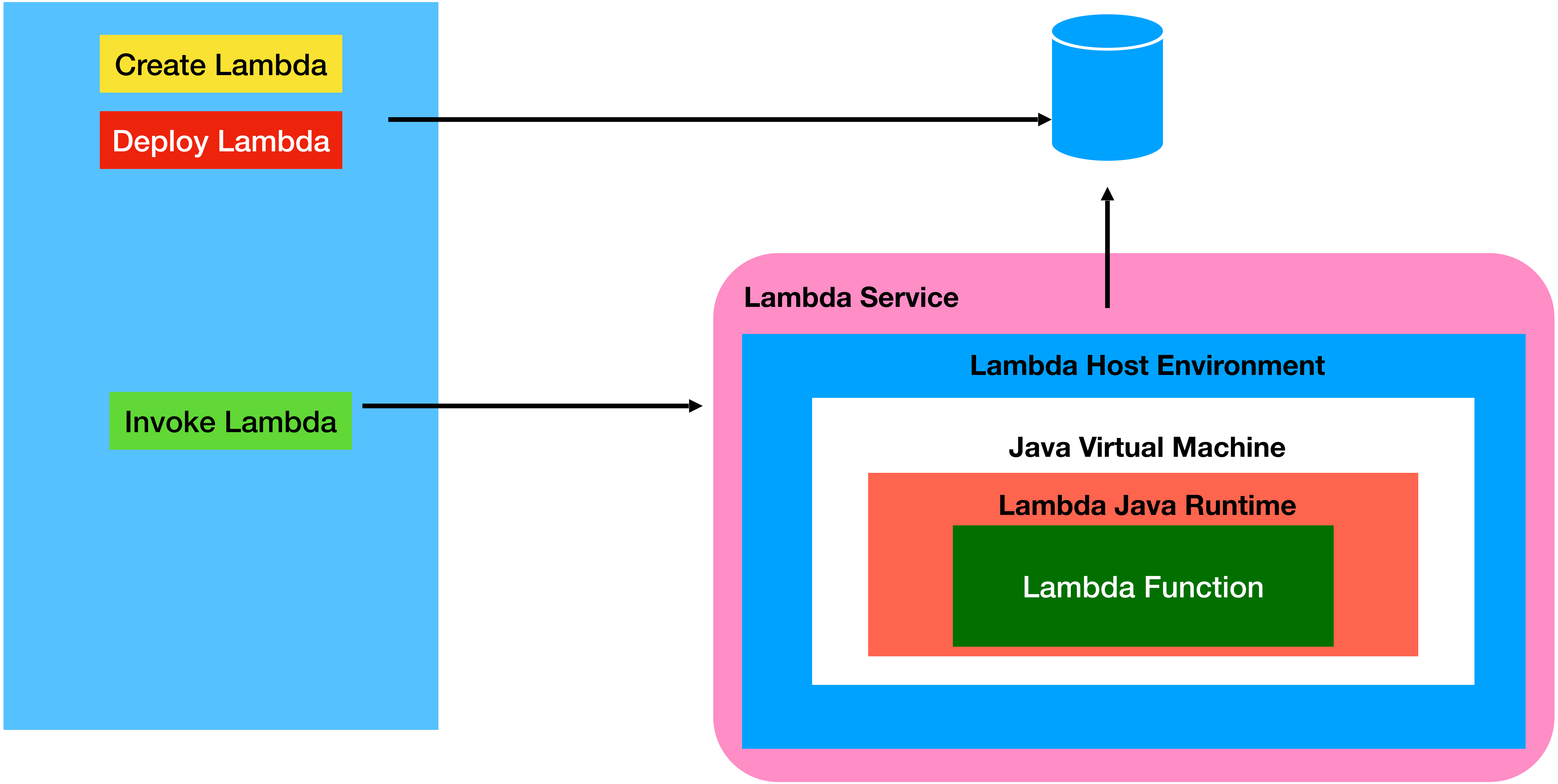
SAM

Cloud Formation

sam build

sam deploy


Create Lambda
Deploy Lambda
Invoke Lambda
Lambda Service
Lambda Host Environment
Python Runtime
Lambda Function


Create Lambda
Deploy Lambda
Invoke Lambda
Lambda Service
Lambda Host Environment
Java Virtual Machine
Lambda Java Runtime
Lambda Function

Create IAM User

AWS CLI

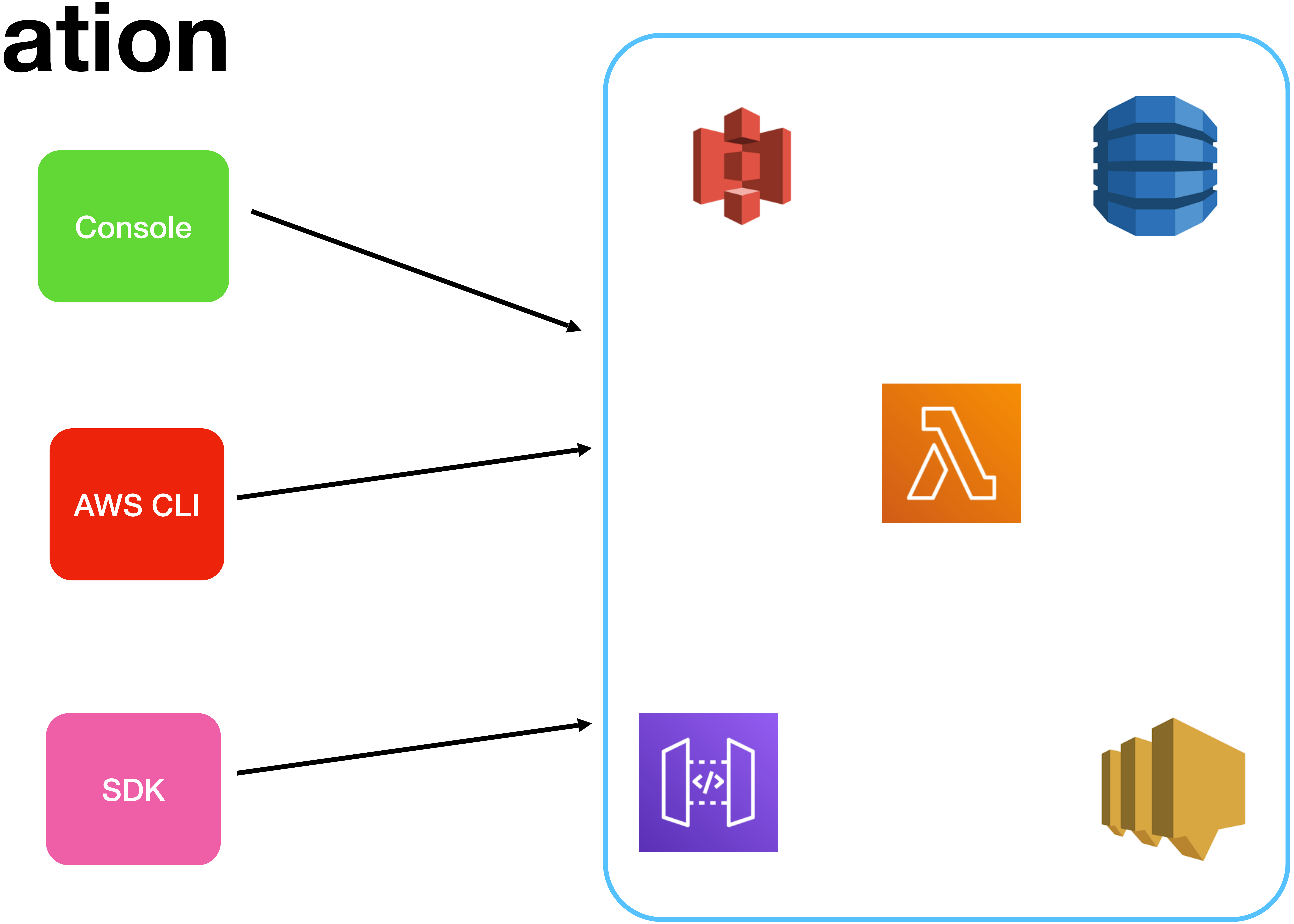
AWS SAM CLI

Install Java

Install Eclipse

Install Maven

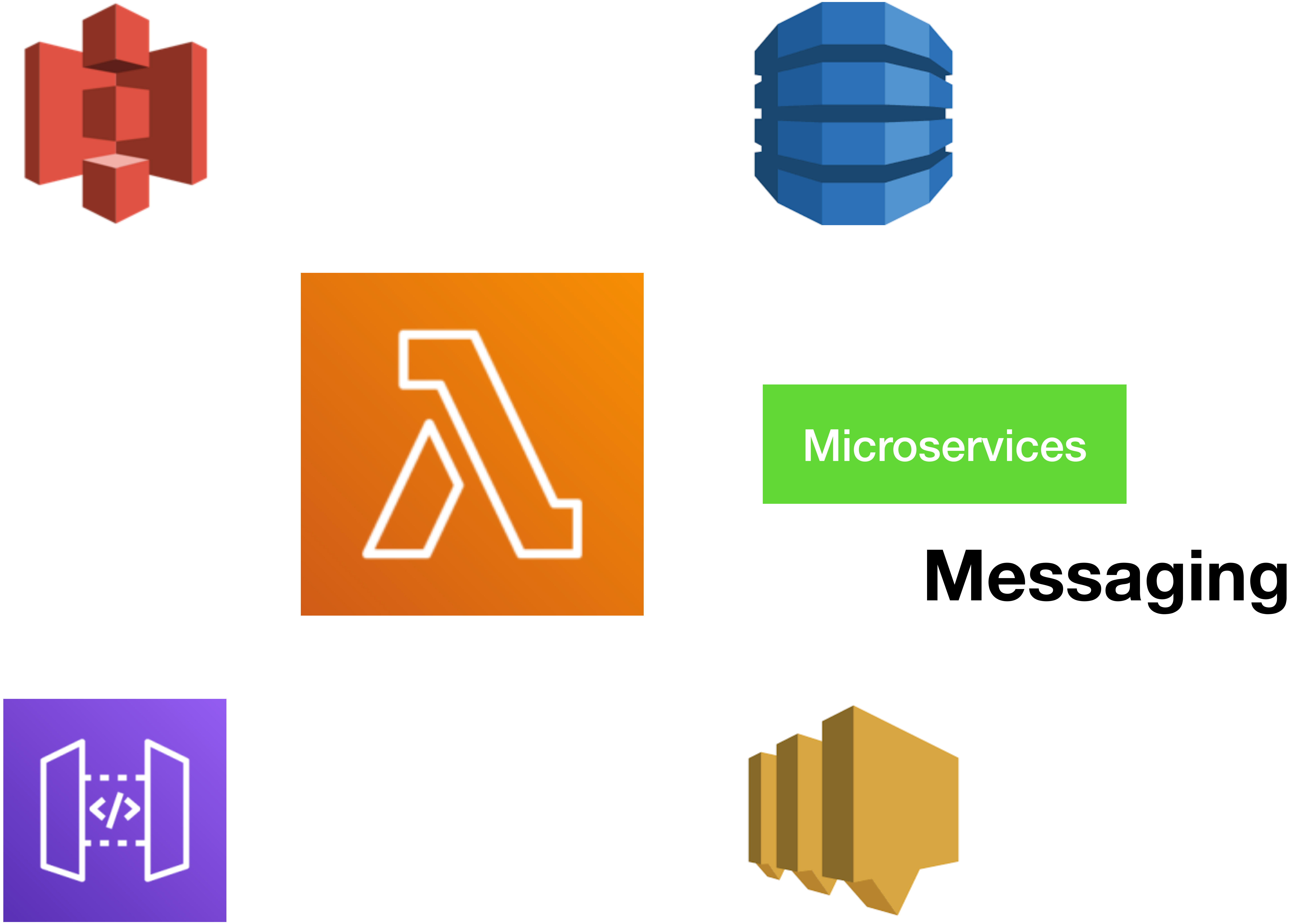
Invocation



Console

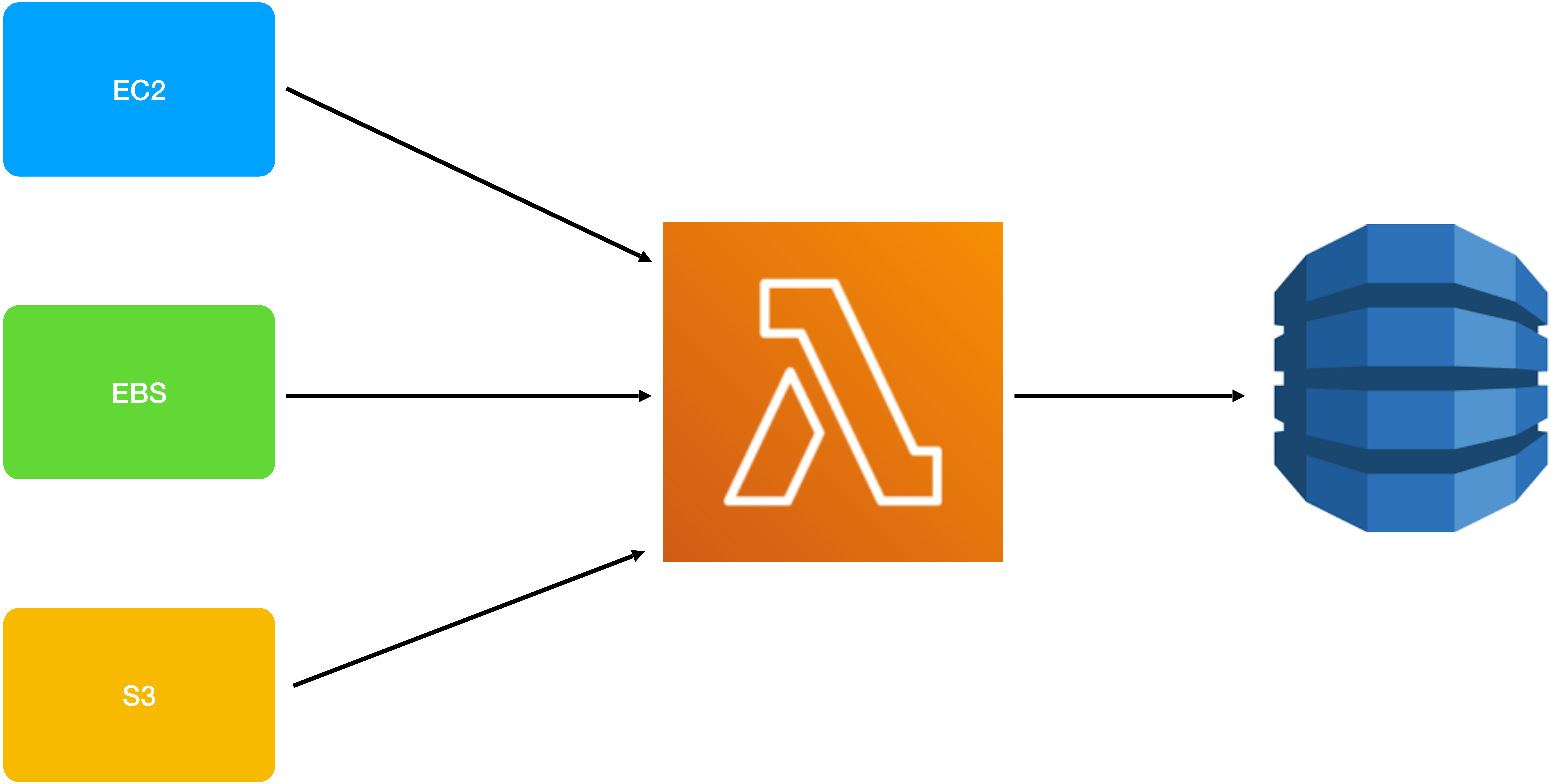
AWS CLI

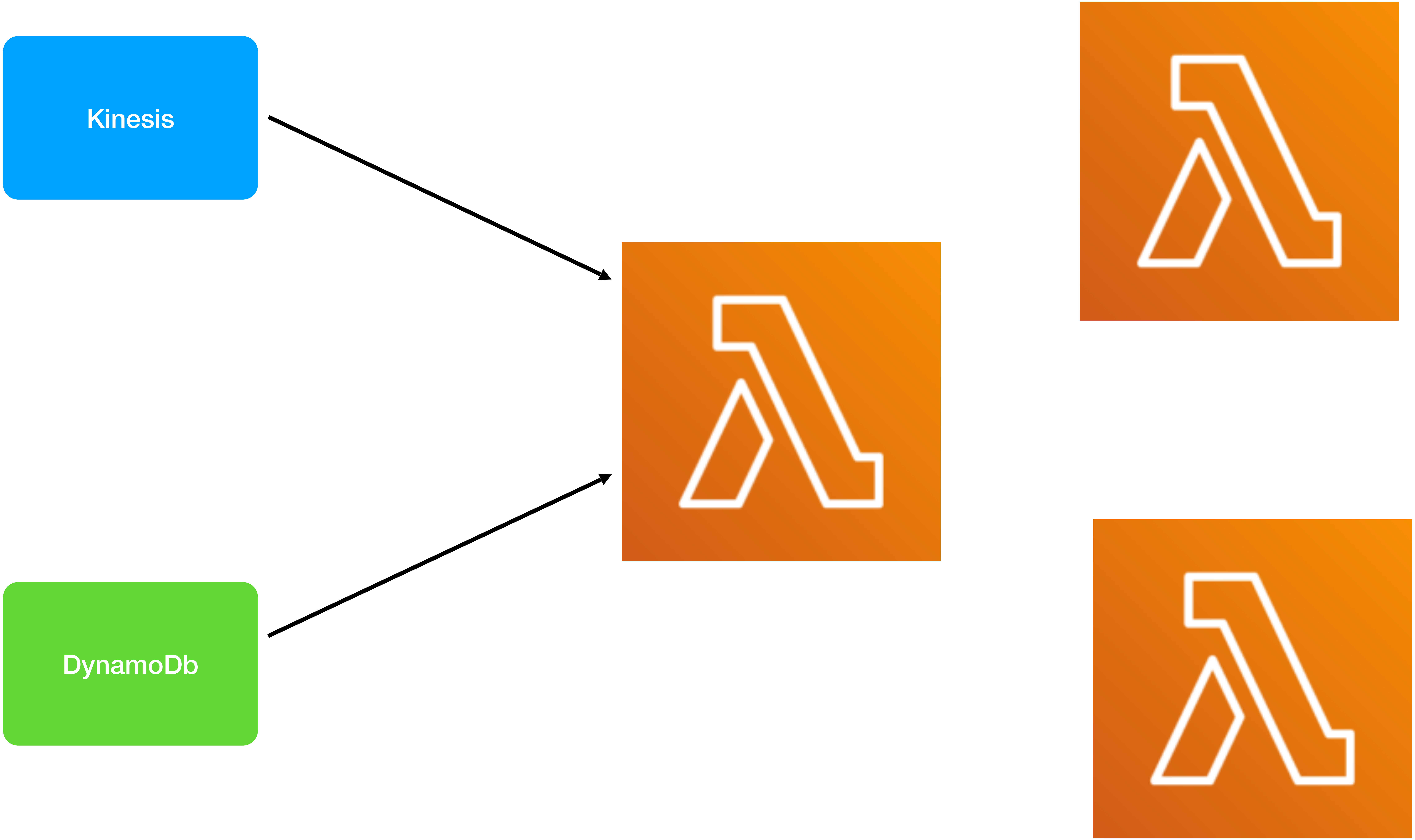
SDK



Microservices

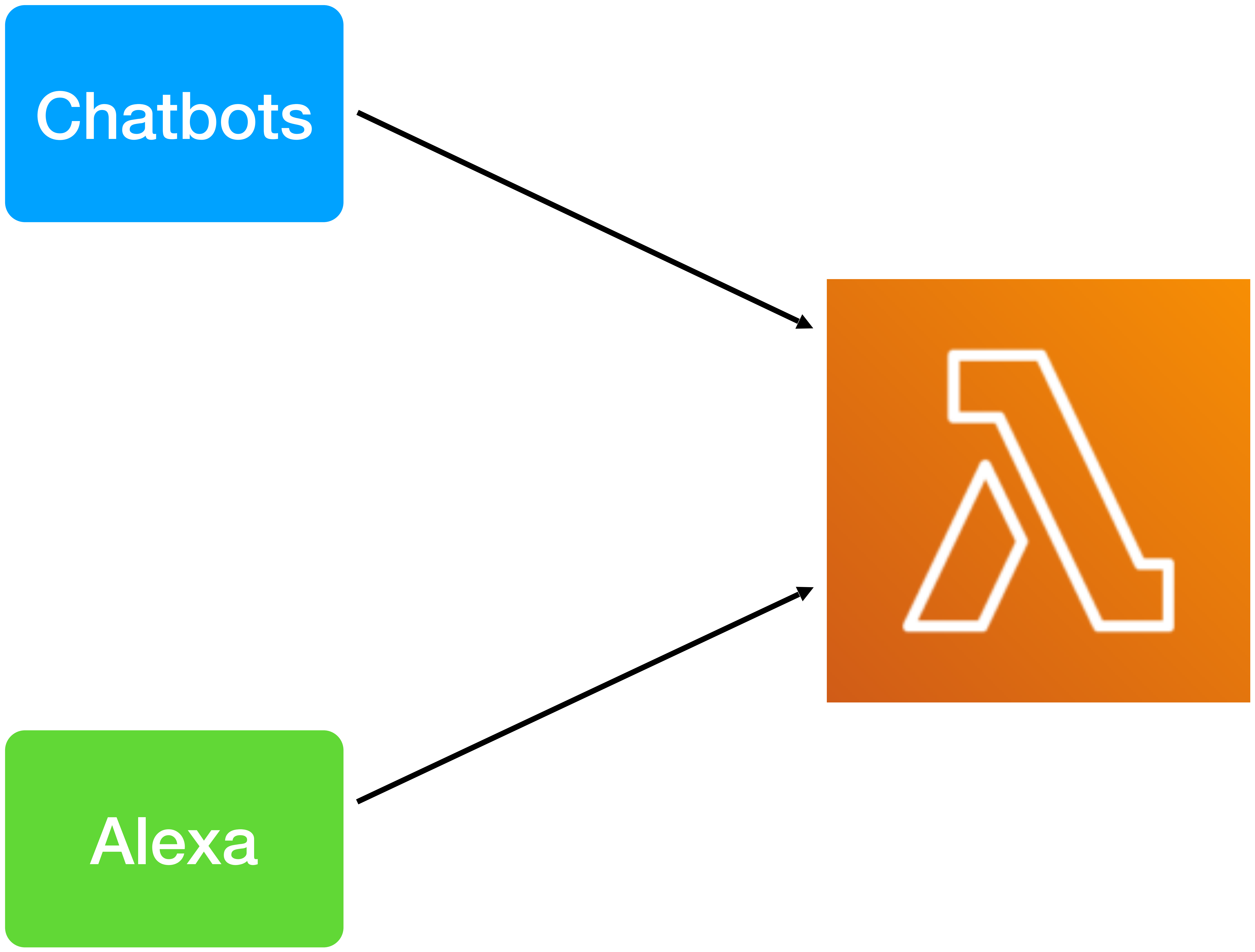
Messaging


EC2
EBS
S3



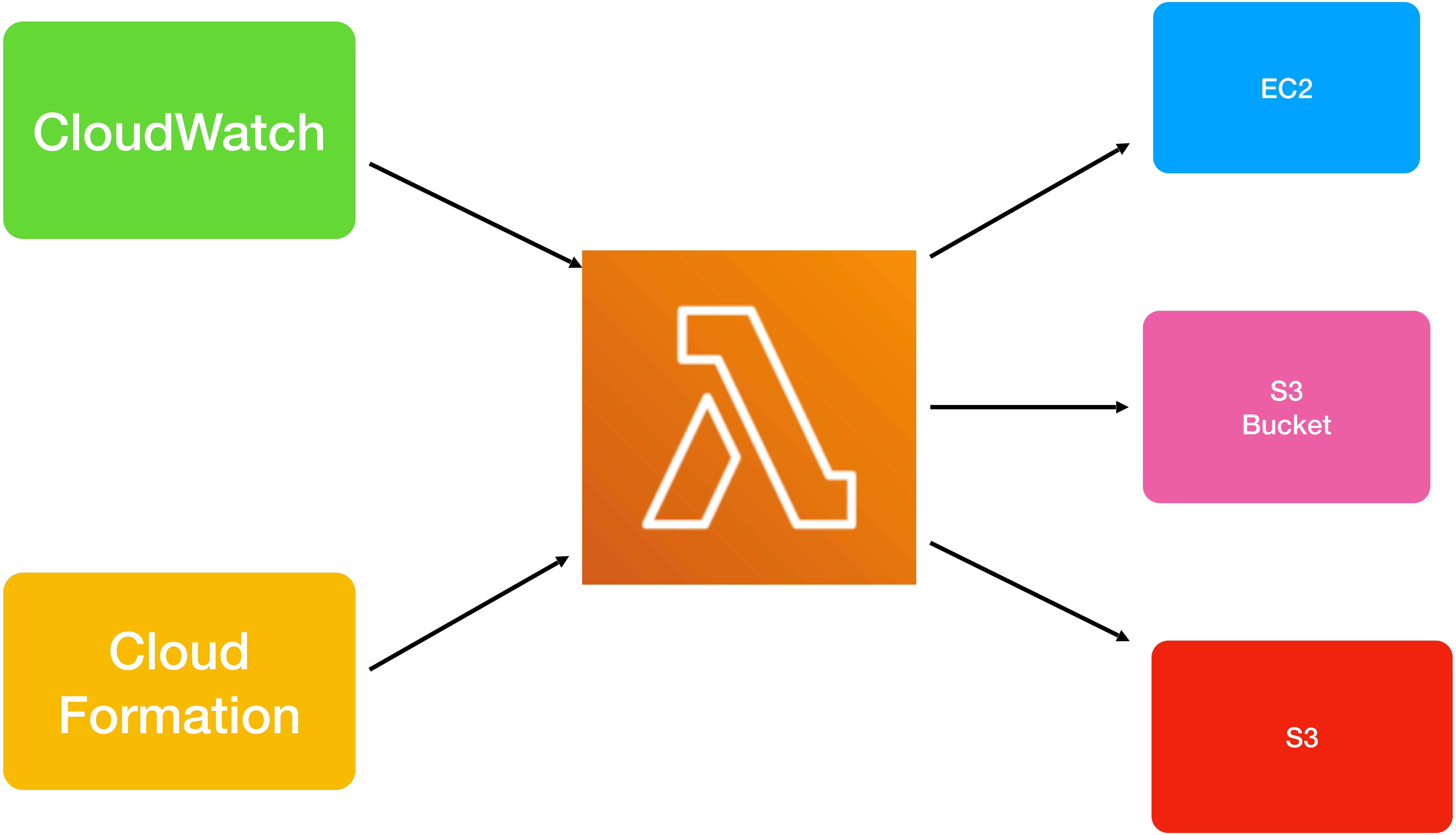
Kinesis

DynamoDb

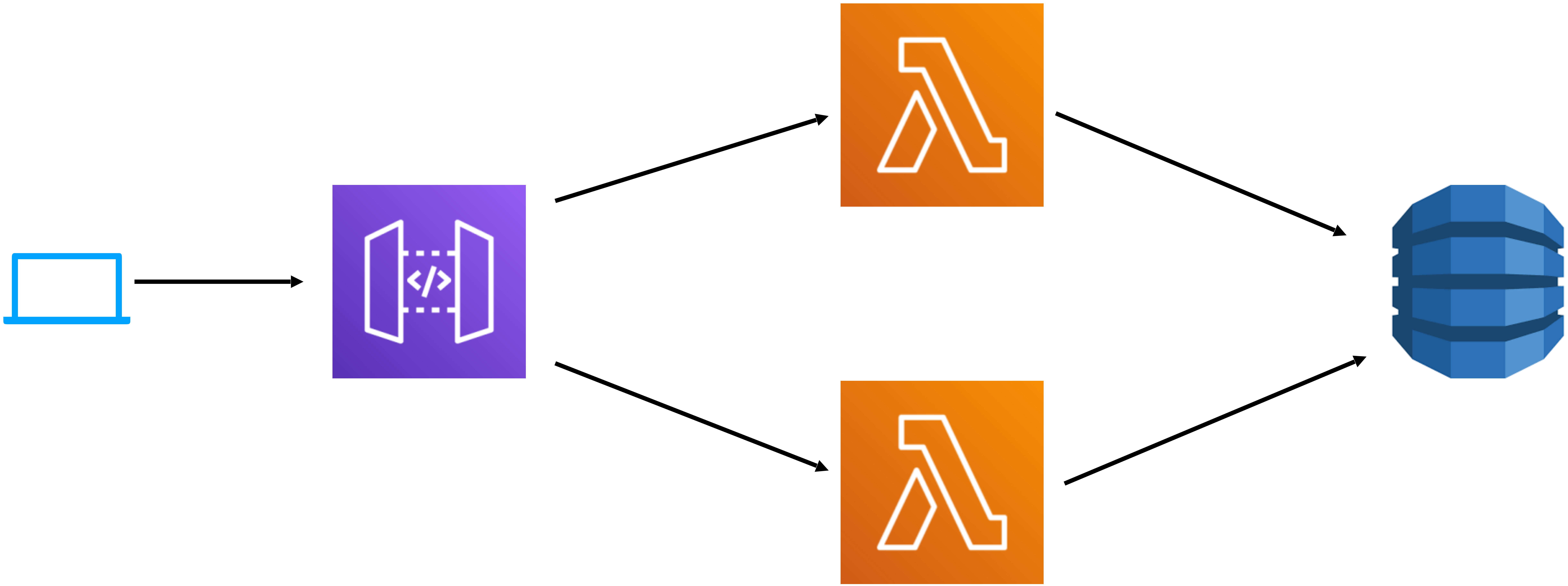


Chatbots

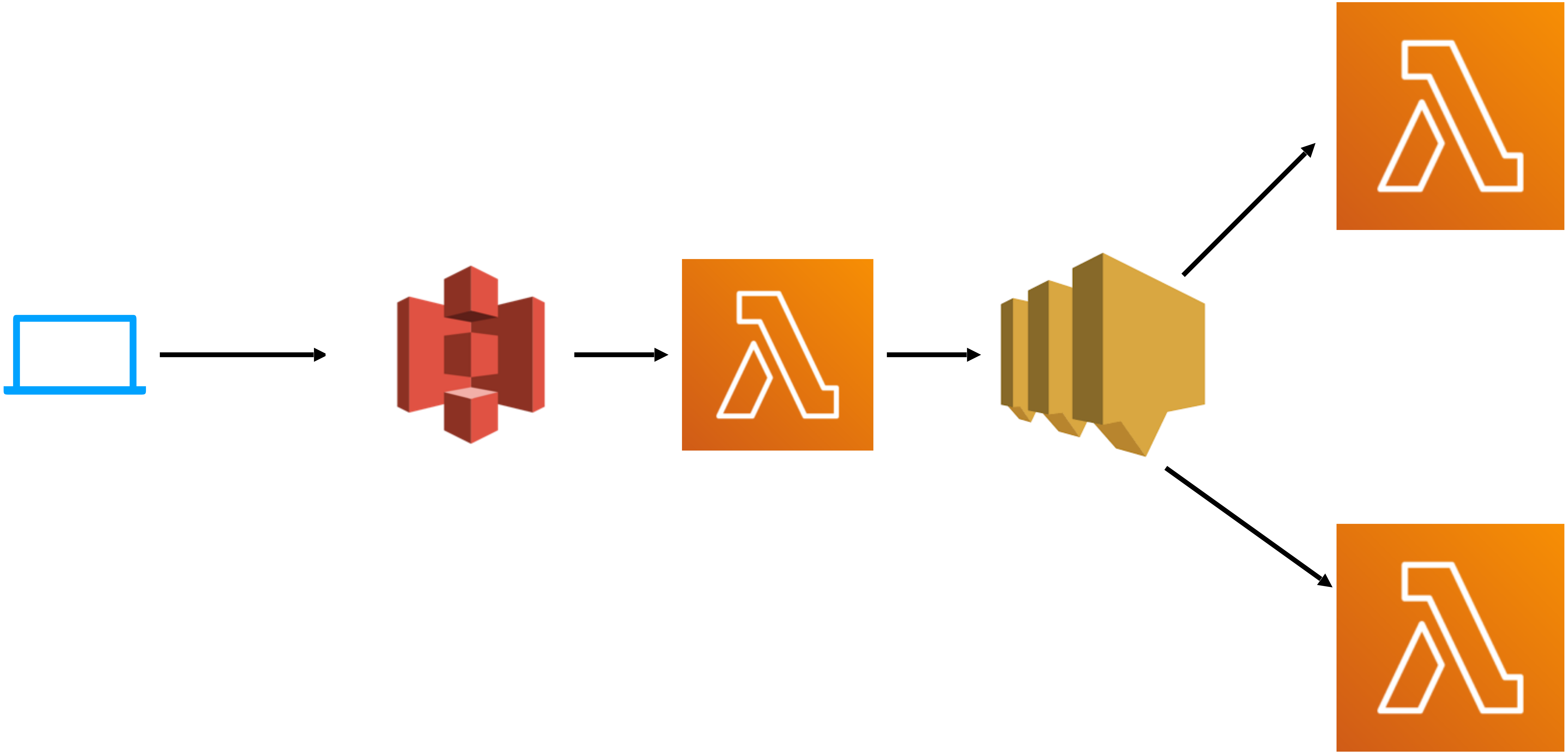
Alexa


CloudWatch
Cloud Formation
EC2
S3 Bucket
S3

API Gateway as Event Trigger



S3 as Event Trigger



Sync

API Gateway

Alexa

CloudFront

Lambda Service

Lambda Host Environment

Java Virtual Machine

Lambda Java Runtime

Lambda Function

Kinesis Data Streams

Dynamo DB Streams

Polling

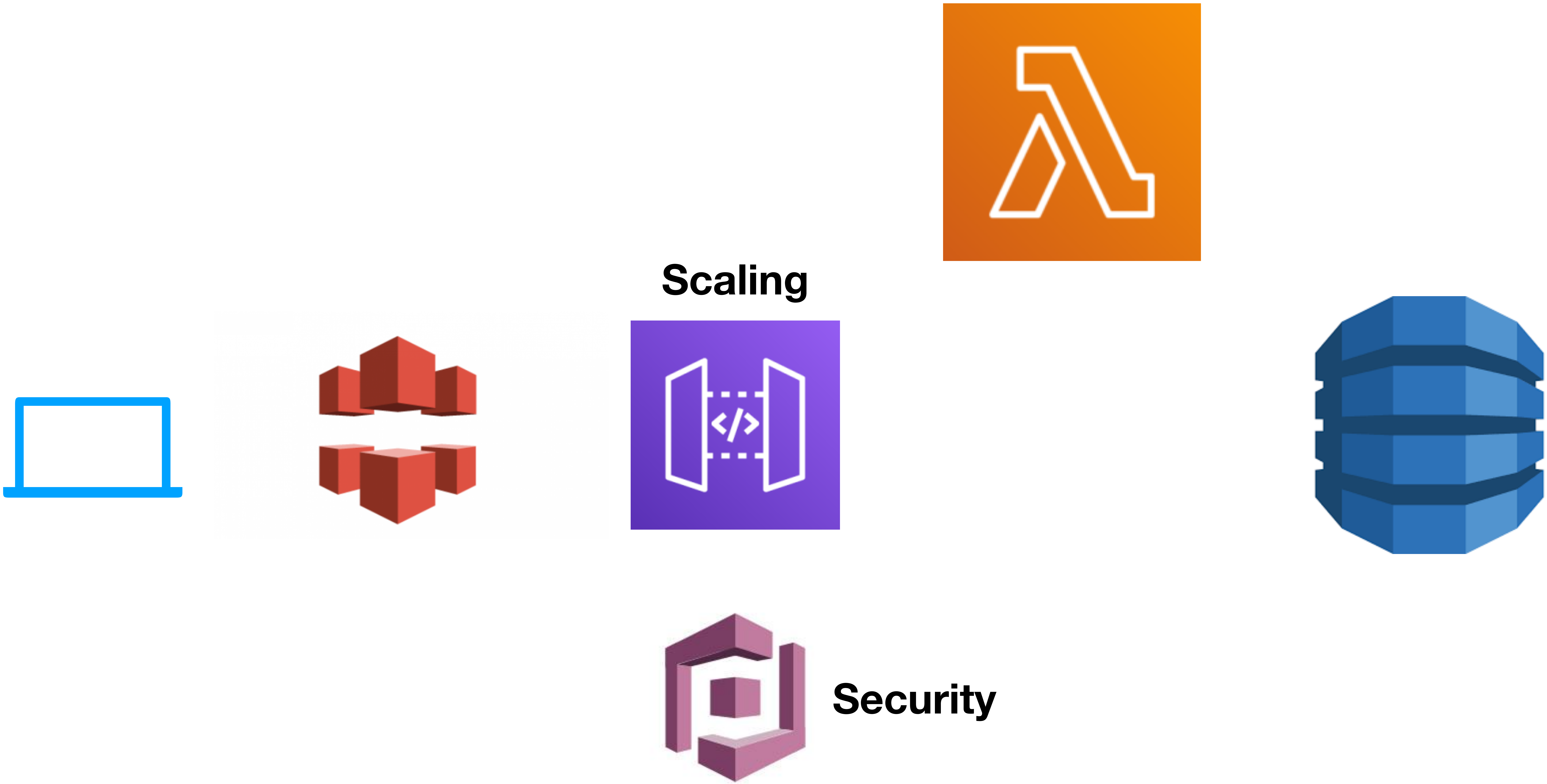
SQS

ASync

S3

SNS

CloudFormation



Scaling

Security

patientData.json v1

patientData.json v2

Bucket Name

Key

Attributes

firstName	lastName	ssn	email

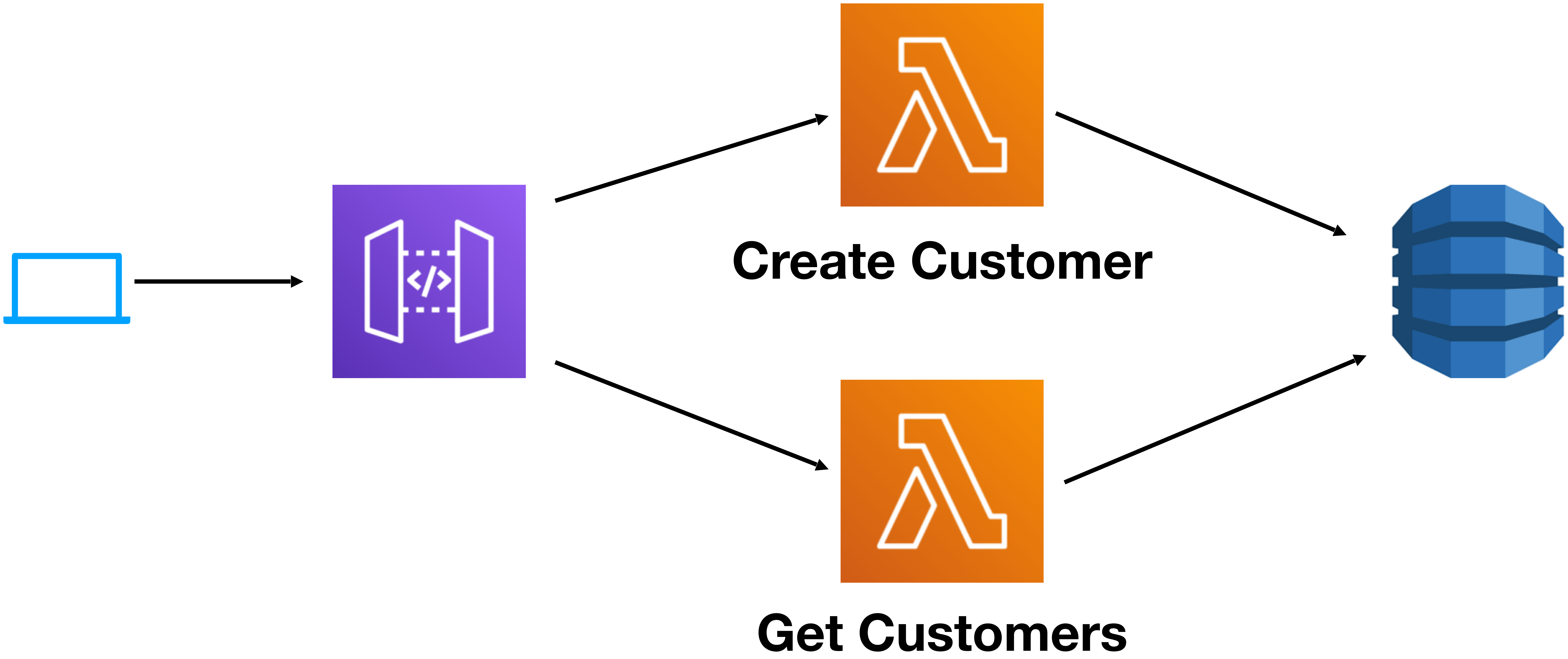
Item

Keys

Partition Key

Sort Key

API Gateway as Event Trigger



Create Customer

Get Customers

API Gateway as Event Trigger

Customer

firstName

lastName

rewardPoints

S3 as Event Trigger

Student

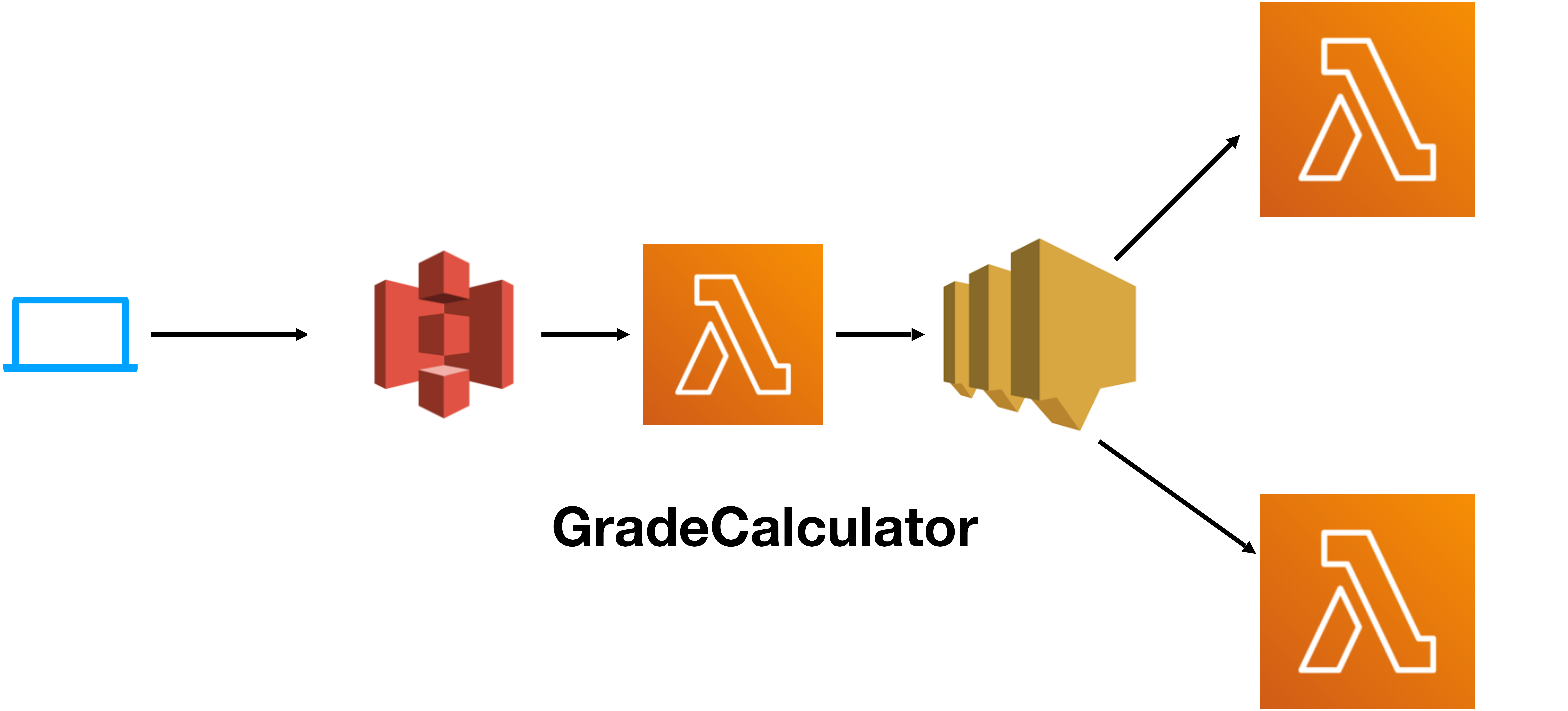
rollNo

name

testScore

grade

S3 as Event Trigger



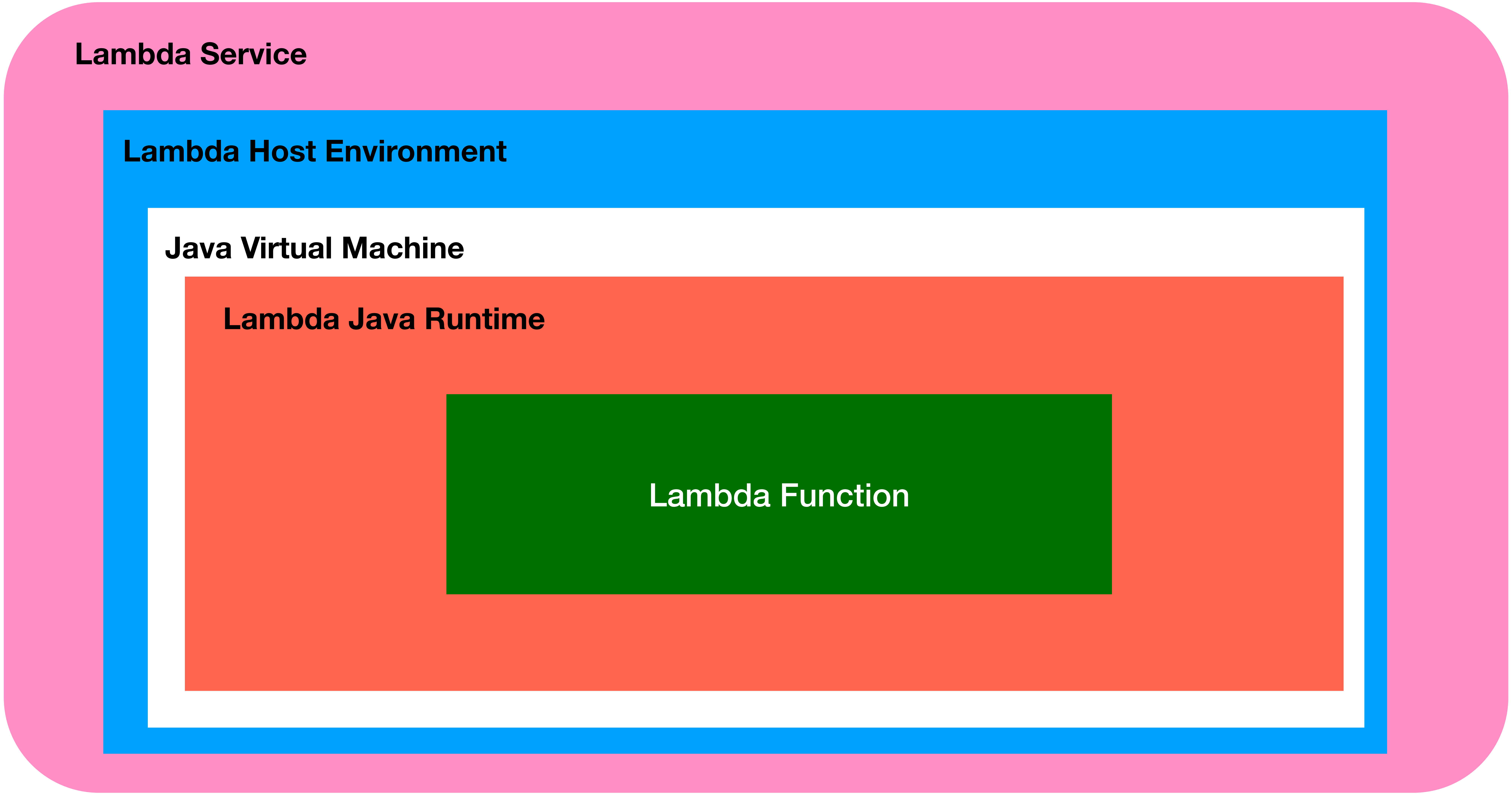
Async Function

- truckTracker
  - Latitude
  - Longitude

Sync Function

- getTicket
  - Payment
  - Ticket

Cold Start



Lambda Service

Lambda Host Environment

Java Virtual Machine

Lambda Java Runtime

Lambda Function

When

Deployed or Changed

Instances Expired

Removed due to age

Scaling

Time Taken

Logging

Function

Instance1

Instance2

Log Group

Log Stream1

Log Stream2

Error Handling

Sync

Return a nice error

Lambda Service

Lambda Host Environment

Python Runtime

Lambda Function

Kinesis Data Streams

Dynamo DB Streams

Polling

SQS

Failure Handling

Retries

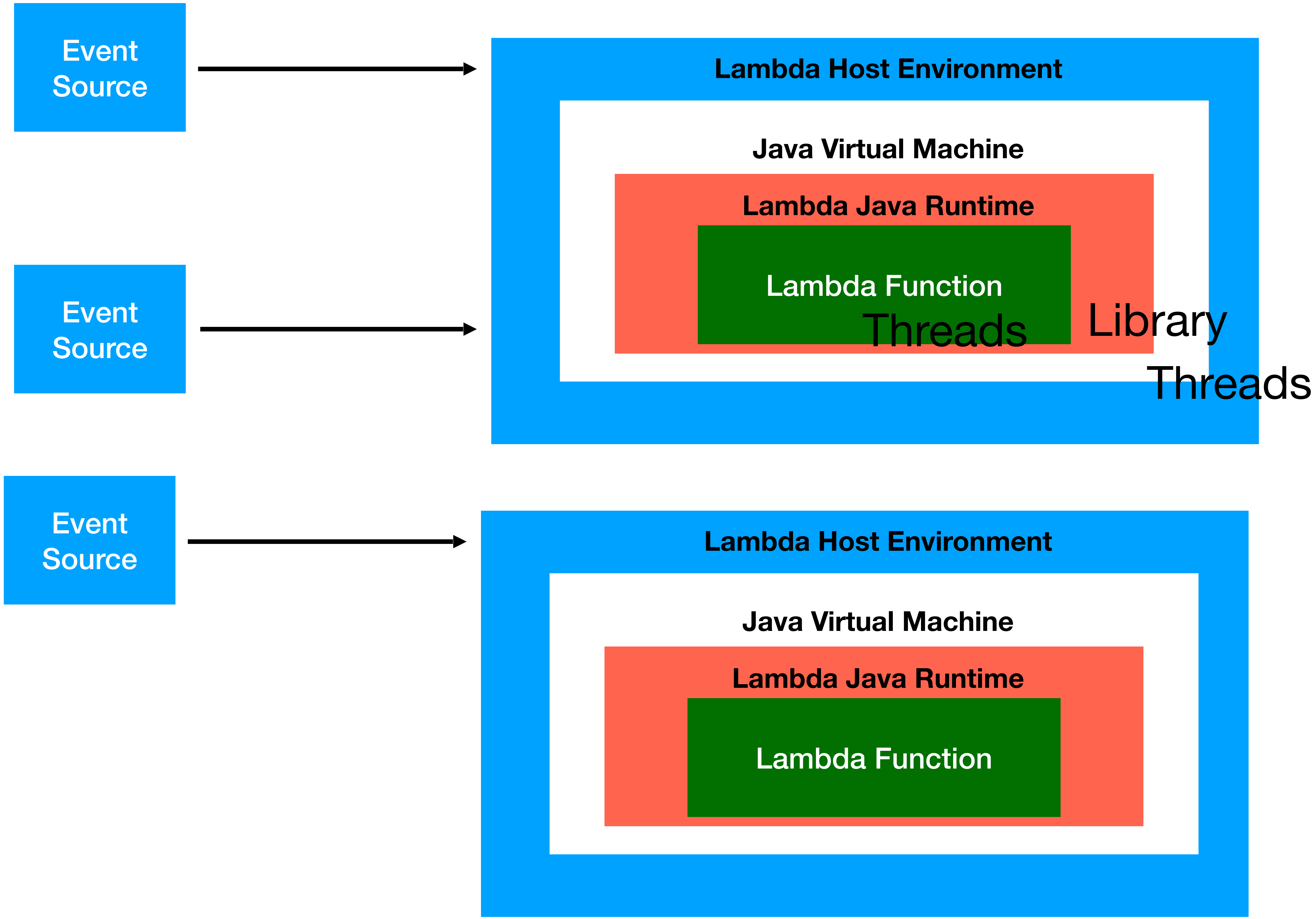
Log

ASync

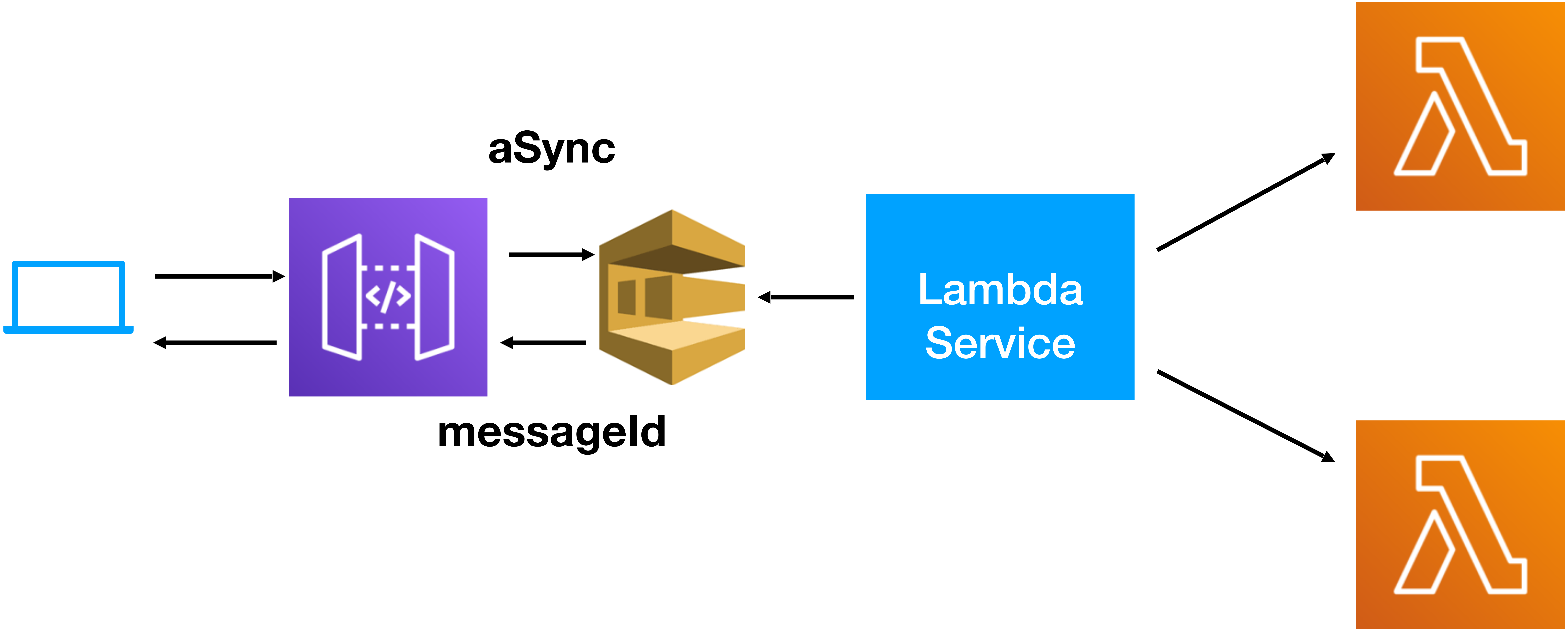
DeadLetterQueue/Destination

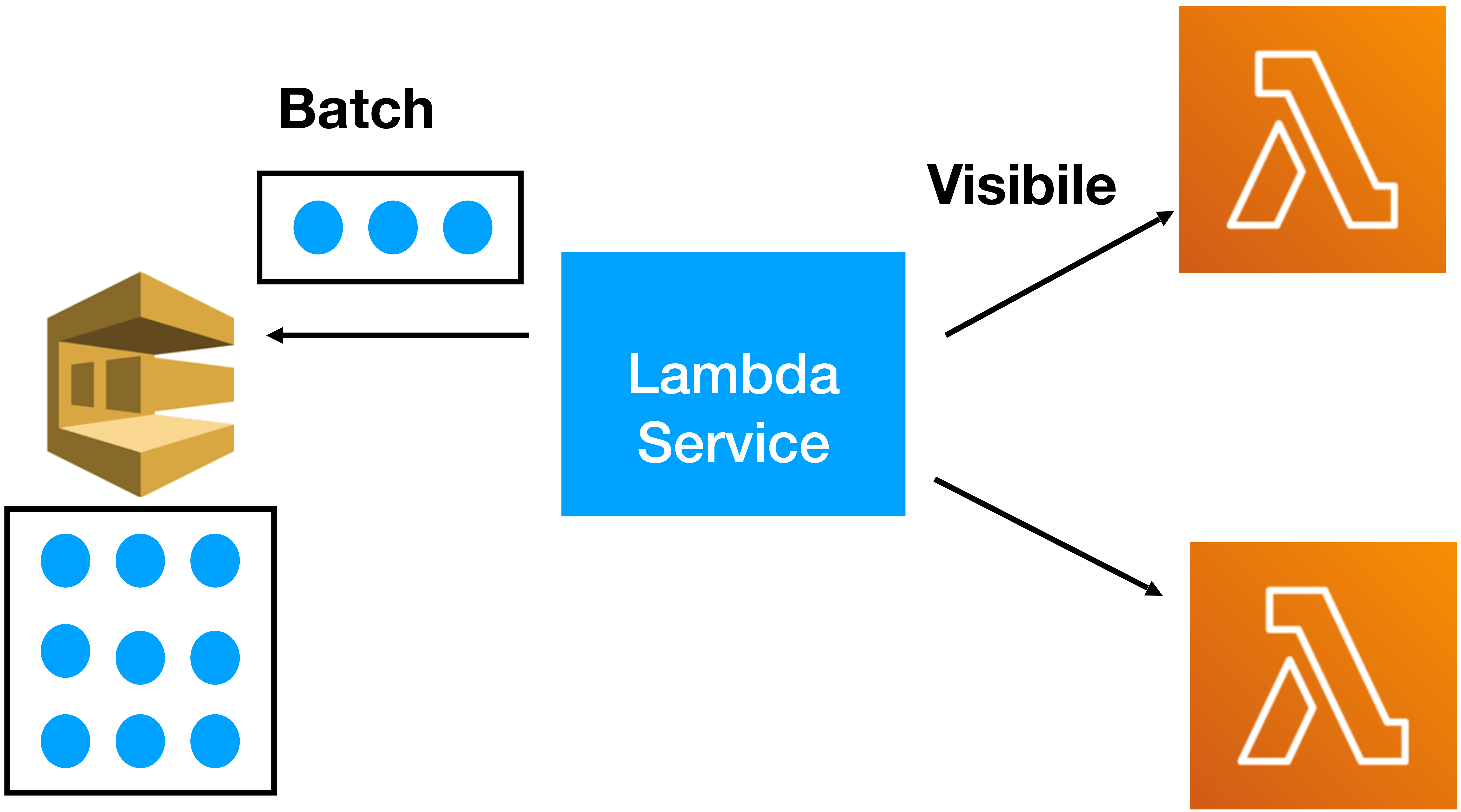
Lambda Function

Lambda Service



SQS




Batch
Lambda Service
Visibile