

# AWS Developer: Serverless Architecture and Monitoring

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Building the Foundations of Serverless Architecture in AWS



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Cloud Developer

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# Serverless

# Innovations in Cloud Monitoring



X-Ray



CloudWatch  
Alarms

# Overview

**A brief history of Serverless**

**The pillars of Serverless architecture**

**A worthy demo project**

# Going Serverless in AWS with Lambda



Security, Stability, and Performance  
with Lambda

## Module Overview

# Sourcing Serverless Events in AWS with API Gateway and Kinesis



API Gateway



Kinesis Streams

## Module Overview

# Monitoring Applications in AWS with X-Ray and CloudWatch



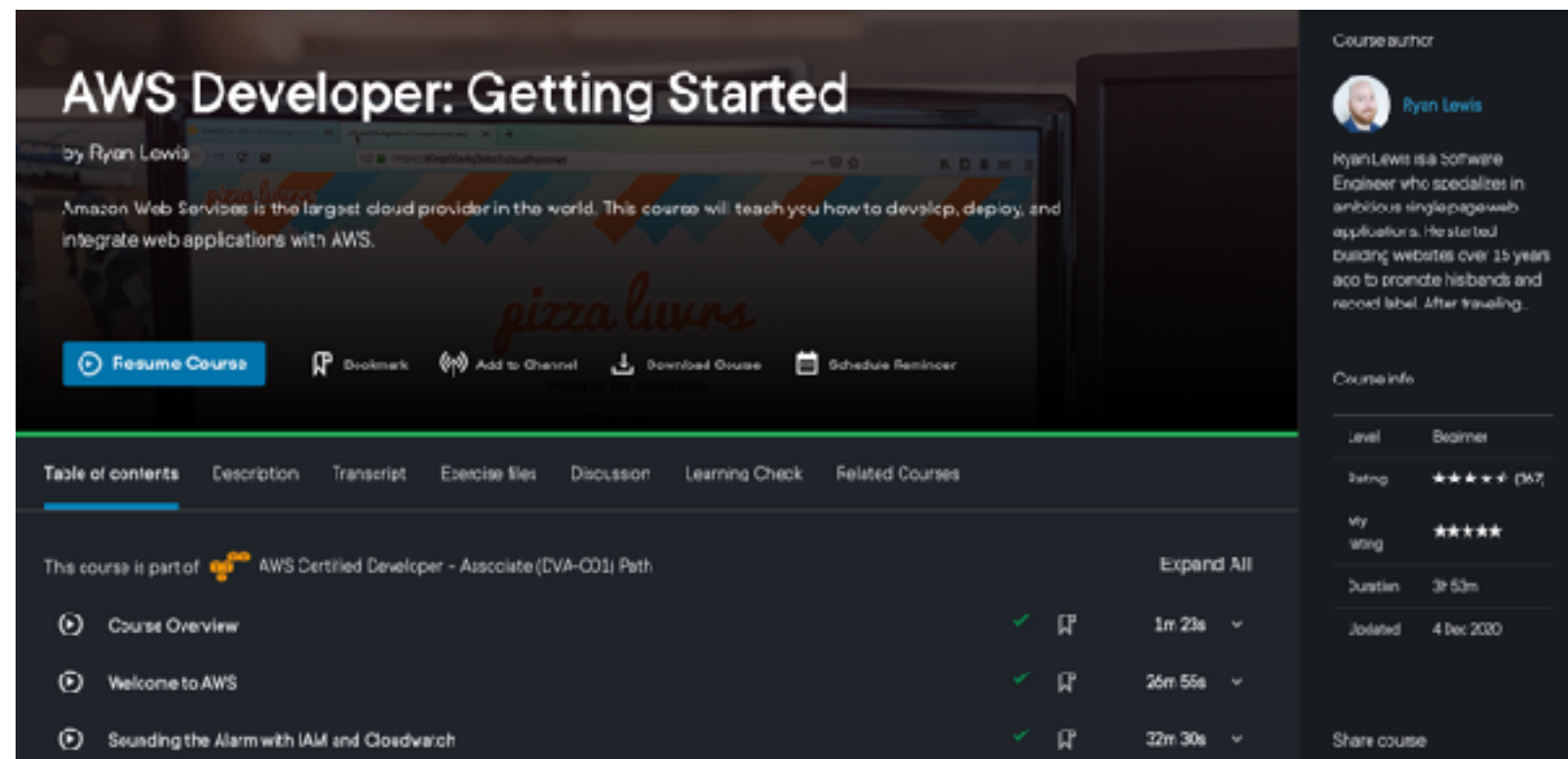
X-Ray



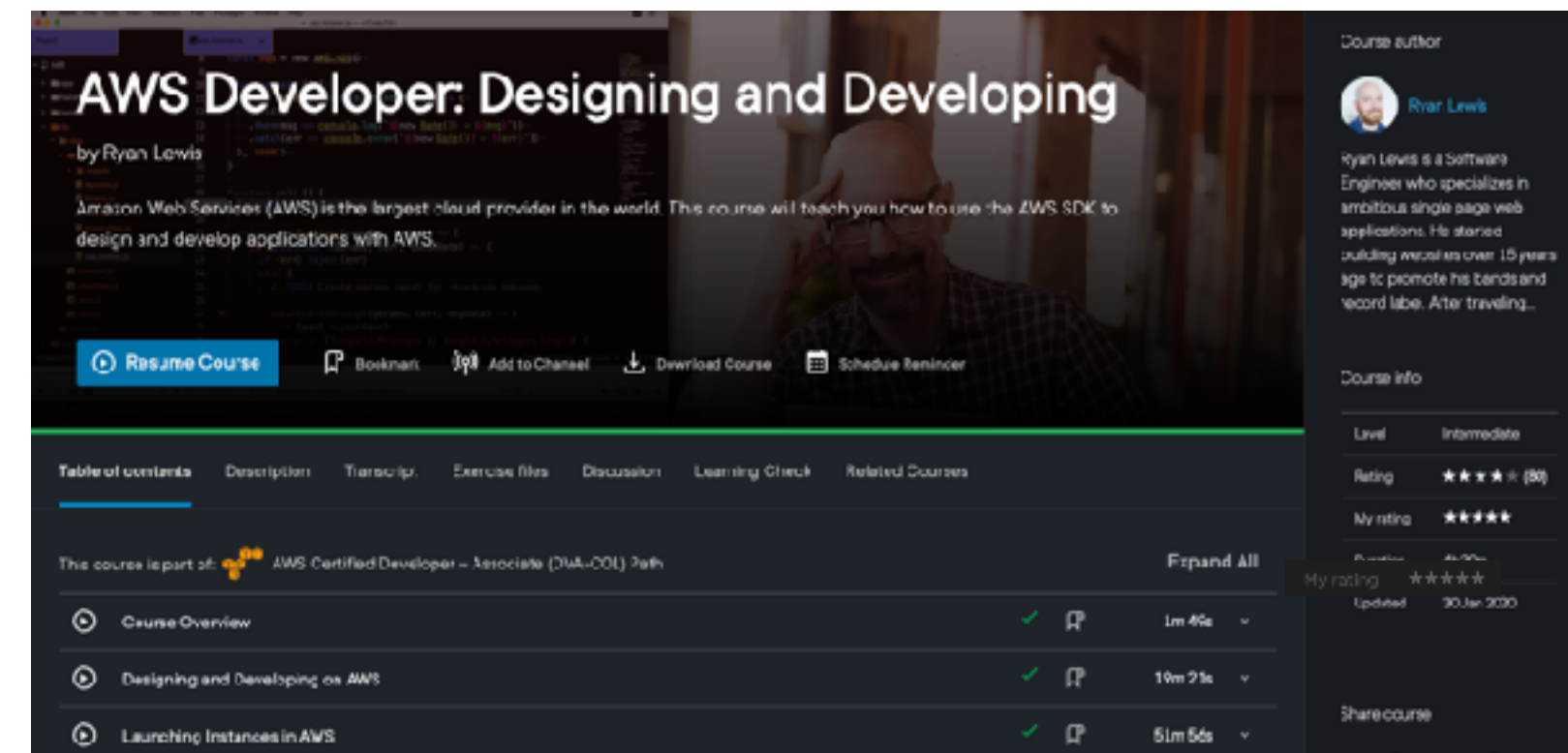
CloudWatch  
Alarms



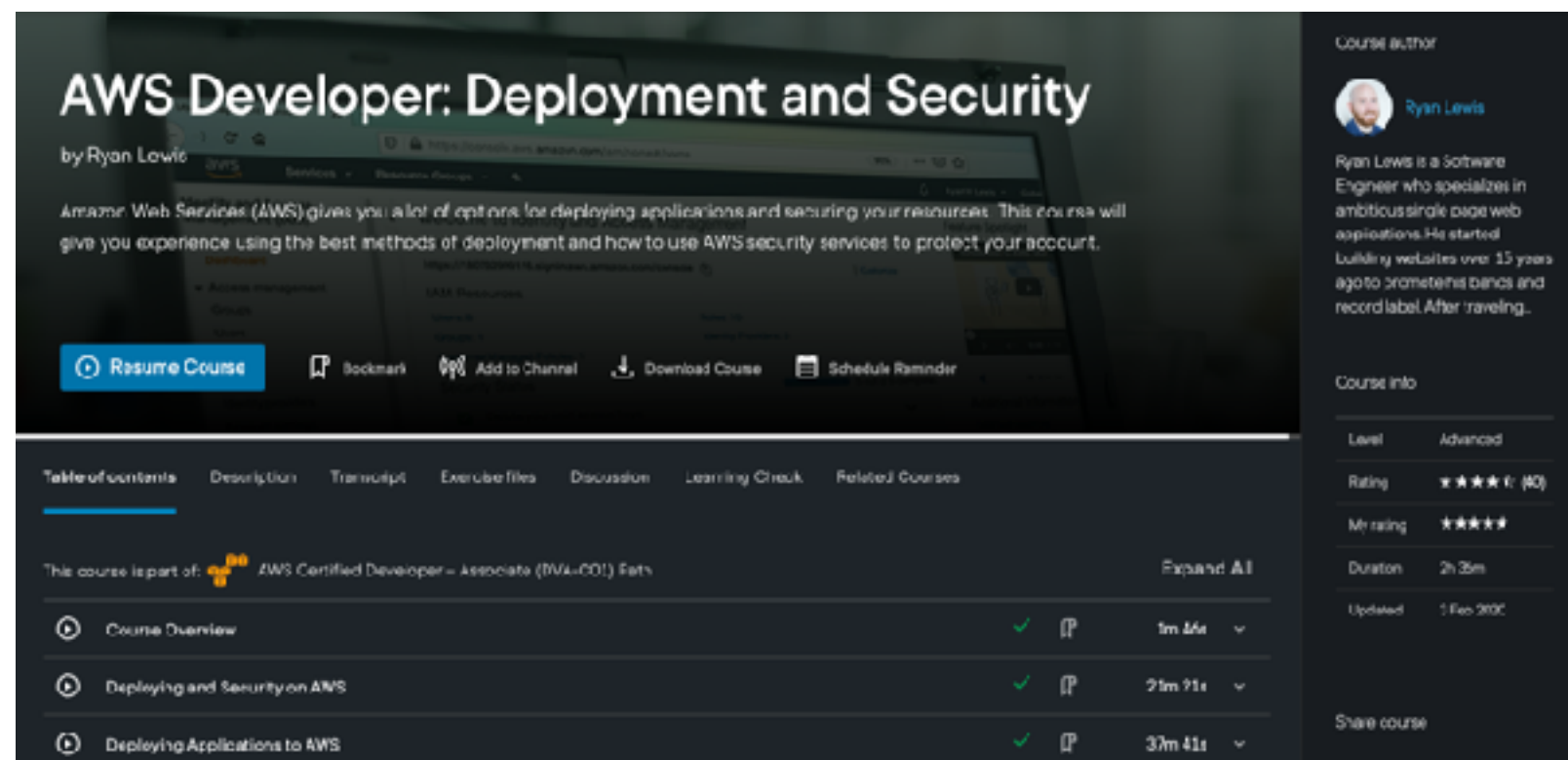
# AWS Certified Developer Path at Pluralsight



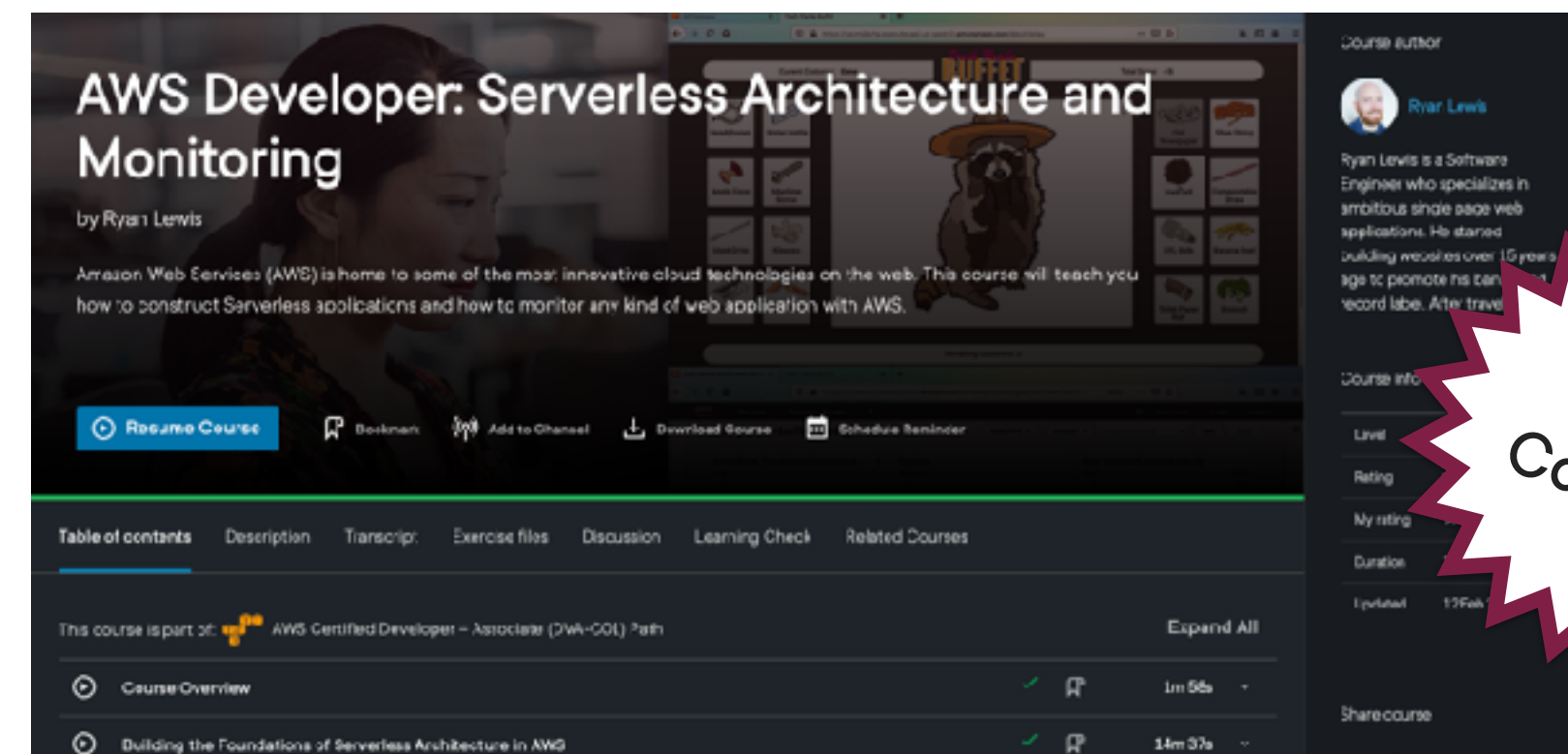
AWS Developer: Getting Started



AWS Developer: Designing and Developing



AWS Developer: Deployment and Security



AWS Developer: Serverless Architecture and Monitoring



Let's get started!

# What is Serverless?

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# Cloud

Buzzword of  
the 2000's



[Pull requests](#)[Issues](#)[Marketplace](#)[Explore](#)

[panicsteve](#) / [cloud-to-butt](#)

[Watch](#)

29

[Star](#)

1.4k

[Fork](#)

873

[Code](#)[Issues](#)

15

[Pull requests](#)

3

[Actions](#)[Projects](#)[Wiki](#)[Security](#)[Insights](#)[master](#)[1 branch](#)[0 tags](#)[Go to file](#)[Add file](#)[Code](#)

**panicsteve** Merge pull request [#70](#) from lionello/fix-nod...



3251e61 on Aug 25, 2019

🕒 29 commits



Source

Fix errors for nodes without tagName or classList

2 years ago



CloudToButt.crx

improved case preservation

9 years ago



LICENSE.txt

Create LICENSE.txt

8 years ago



README.md

Update README.md

4 years ago



logo.png

added logo

6 years ago



README.md

# cloud-to-butt

## About

Chrome extension that replaces occurrences of 'the cloud' with 'my butt'

[Readme](#)[WTFPL License](#)

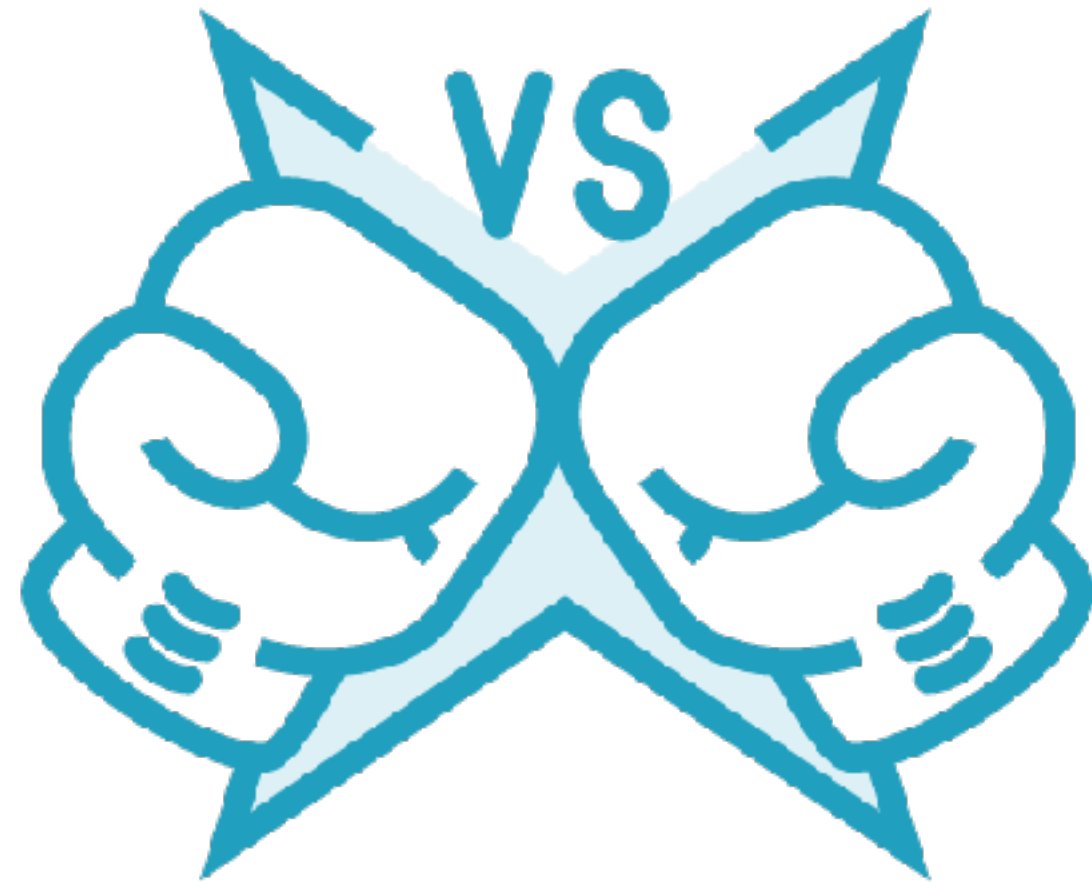
## Releases

No releases published

## Packages

No packages published

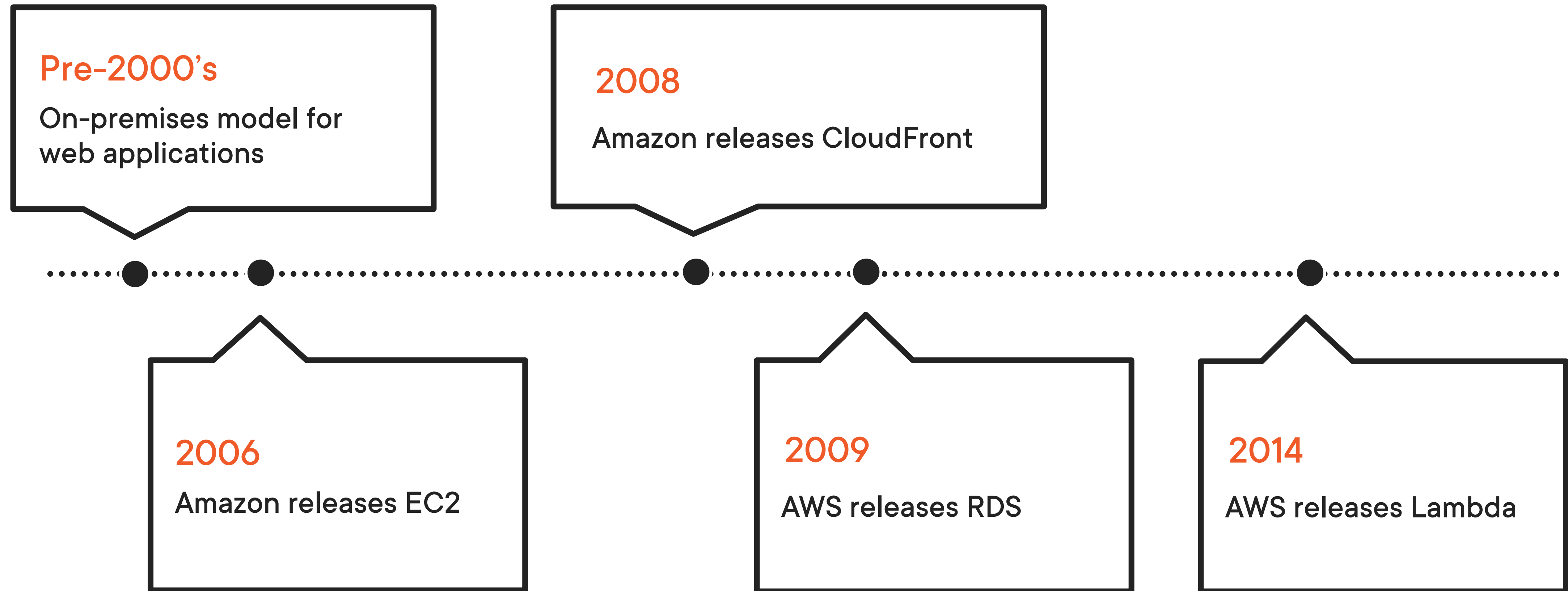
**Serverless**



**Cloud**



# Ancient Web Infrastructure History



# Benefits of Serverless Architecture



No Server  
Management



Lower Costs



**The platform (AWS) handles instances, scaling, routing, and stability**

**Pay only when your code runs**

**Lambdas don't hold state, so use a database  
or cache**

**Resources run in response to events, such as messaging or HTTP**

# Serverless in a Nutshell

Abstracted  
Infrastructure

Pay for What You Use

Stateless

Event Based

# Architecting a Serverless Application

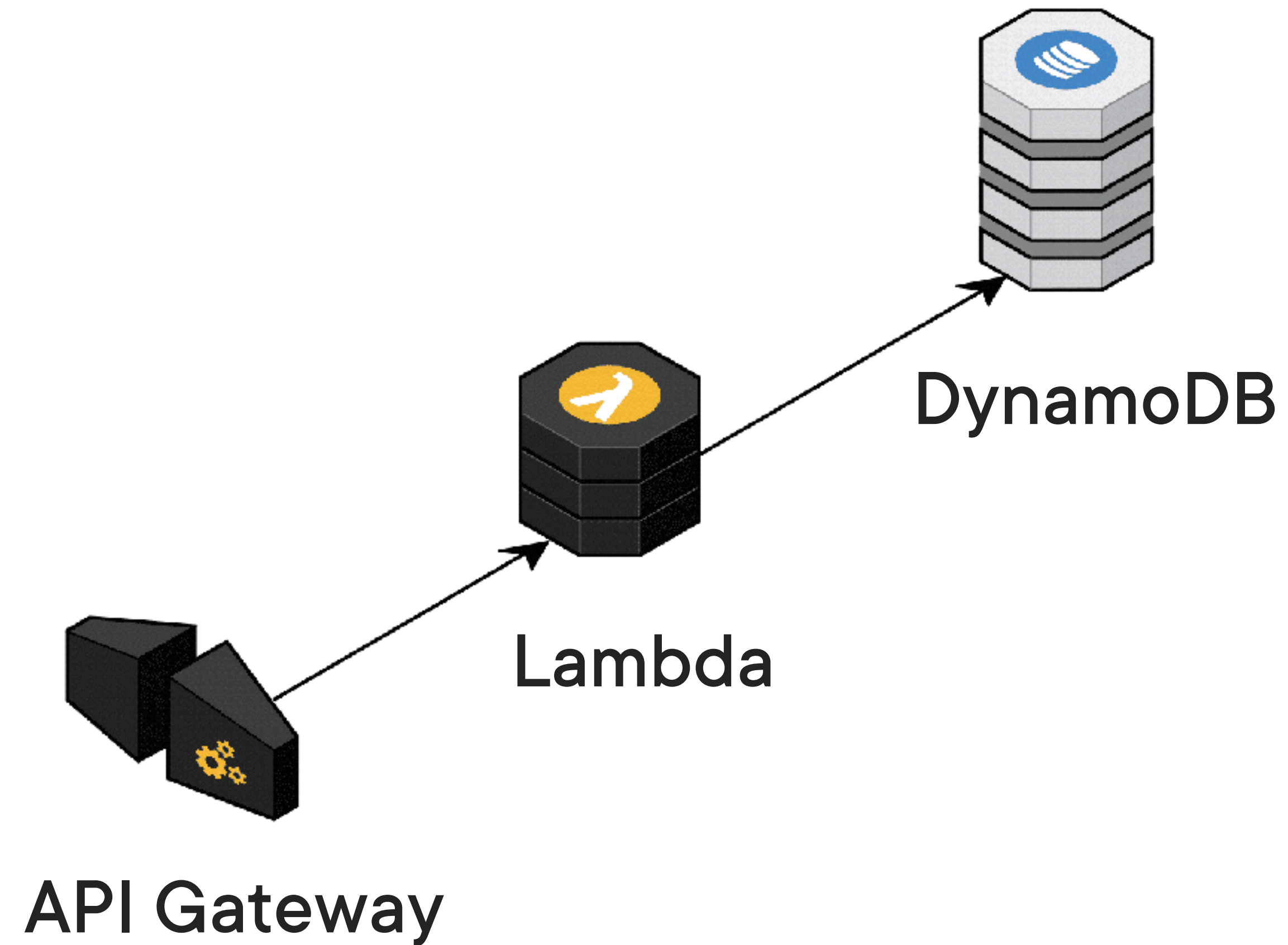
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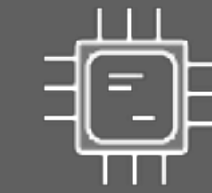
Step 1

# Make a Visual Diagram



# Visual Diagram Example





## Lambda Functions

Consider each individual function you may need



## S3 Buckets

Compartmentalize files using buckets or directories



RDS, DynamoDB, or ElastiCache

SQL or NoSQL?

RDS requires a connection, which adds to the execution time of your Lambda function

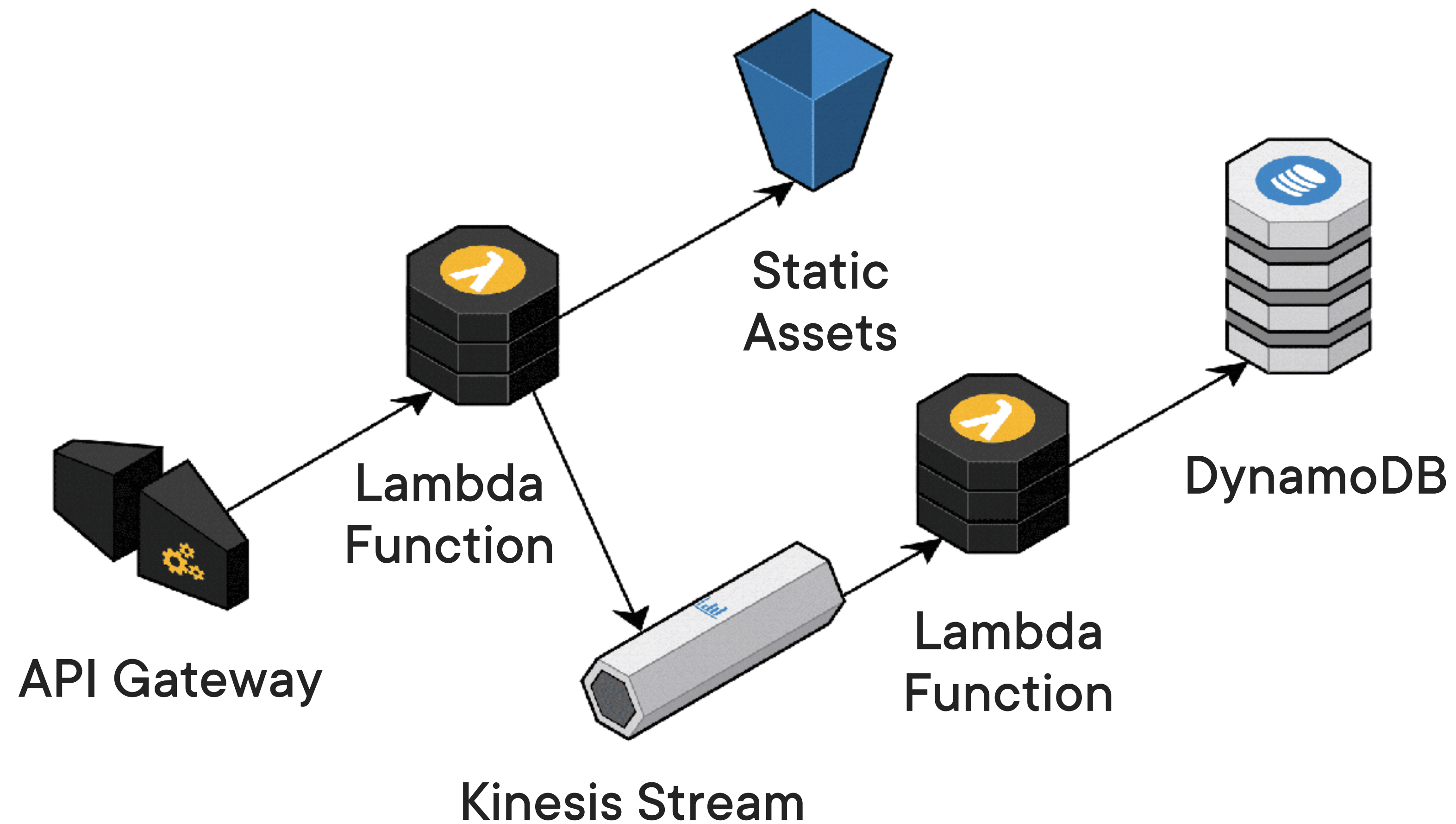
Use RDS Proxy

## Various AWS Services

API Gateway for web apps

Kinesis or SQS for messaging

# Four Pillars of Serverless at Work



# The Serverless Framework

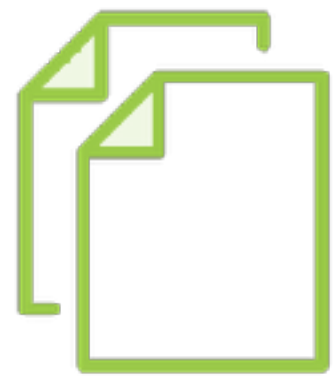
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# Why Use the Serverless Framework?



Simple and easy deployment



Easy to reproduce architecture



Local execution for development and debugging

# More Adventures in the Serverless Framework

The screenshot shows a course page for 'Using the Serverless Framework with Node.js on AWS' by Fernando Medina Corey. The page features a dark background with a person wearing headphones. The course title is prominently displayed in white. Below the title, the author's name is listed. A description of the course is provided, stating it teaches the basics of the Serverless Framework and how to build event-driven microservice applications. A row of action buttons includes 'Start Course', 'Bookmark', 'Add to Channel', 'Download Course', and 'Schedule Reminder'. A horizontal menu at the bottom of the main content area lists 'Table of contents', 'Description', 'Transcript', 'Exercise files', 'Discussion', 'Learning Check', and 'Related Courses'. The 'Table of contents' section is expanded, showing a 'Course Overview' item with a duration of 1m 20s. On the right side, the 'Course author' section includes a profile picture and a bio. Below that, the 'Course info' section lists details such as Level (Intermediate), Rating (4.5 stars from 75 reviews), My rating (5 stars), Duration (1h 38m), and Released date (3 Oct 2017).

Home Browse Search...

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## Using the Serverless Framework with Node.js on AWS

by Fernando Medina Corey

The Serverless Framework is the world's leading development framework for building serverless applications. This course teaches you the basics of the framework and how to use it to build event-driven microservice applications that auto-scale.


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**Course author**

 **Fernando Medina Corey**

Fernando works full time learning the newest trends and tools in application development in order to share them with application developers and architects. Before this, he worked as a Data Engineer...

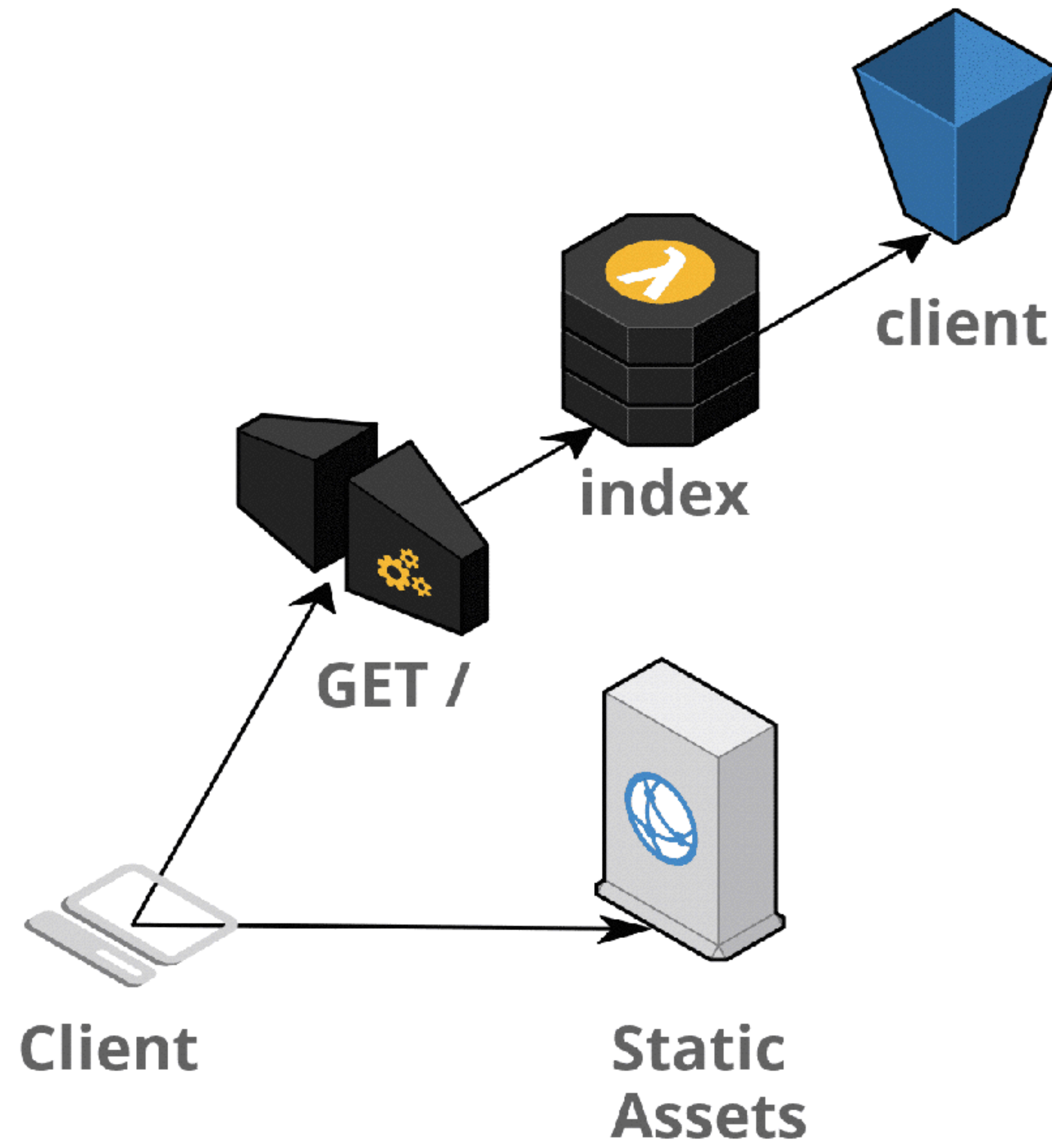
**Course info**

Level	Intermediate
Rating	★★★★☆ (75)
My rating	★★★★★
Duration	1h 38m
Released	3 Oct 2017

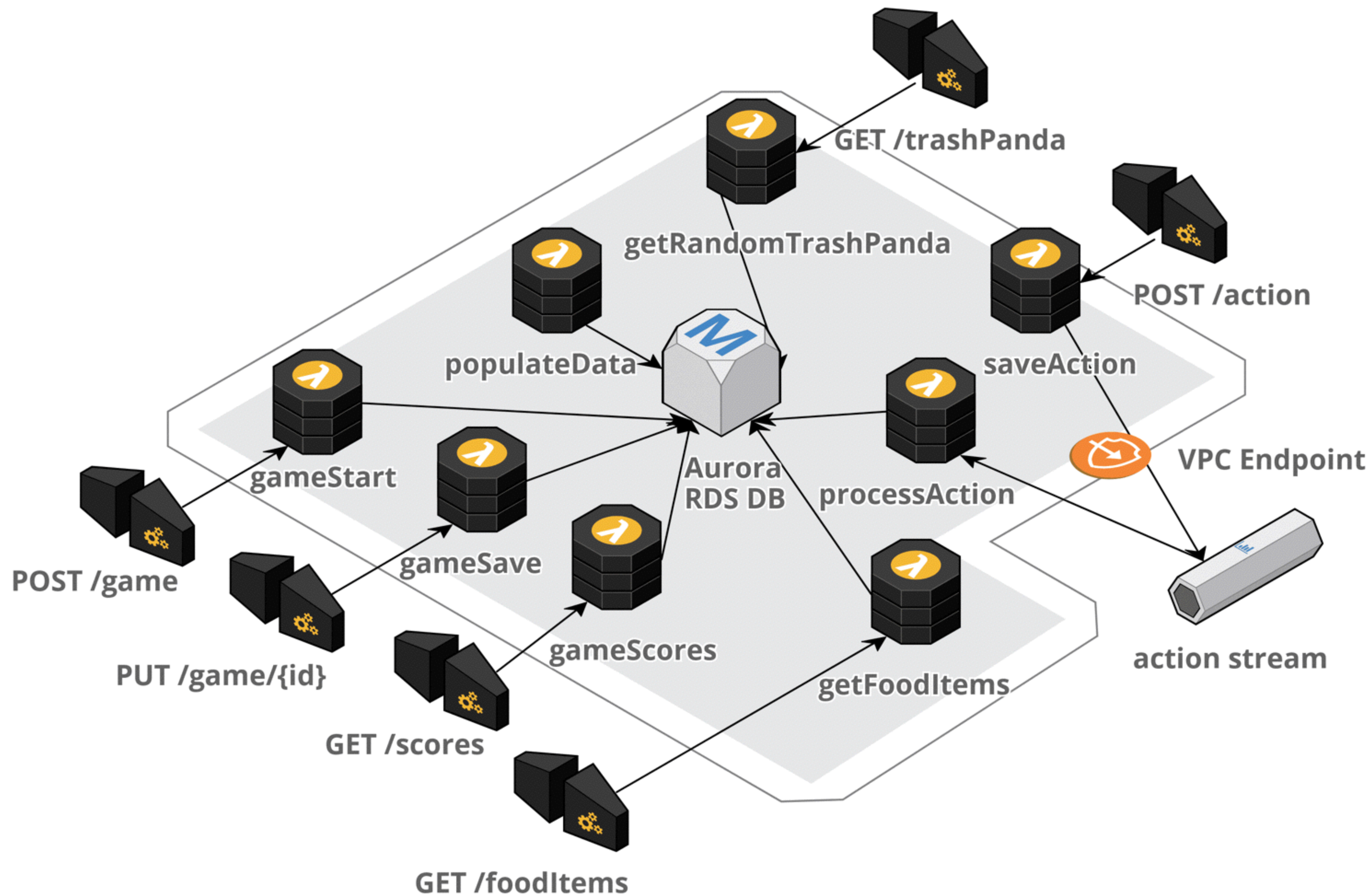
This won't be on the test

# Trash Panda Buffet

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# Before We Start

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# AWS CLI



Download and install AWS CLI



Configure with a user's access key and secret



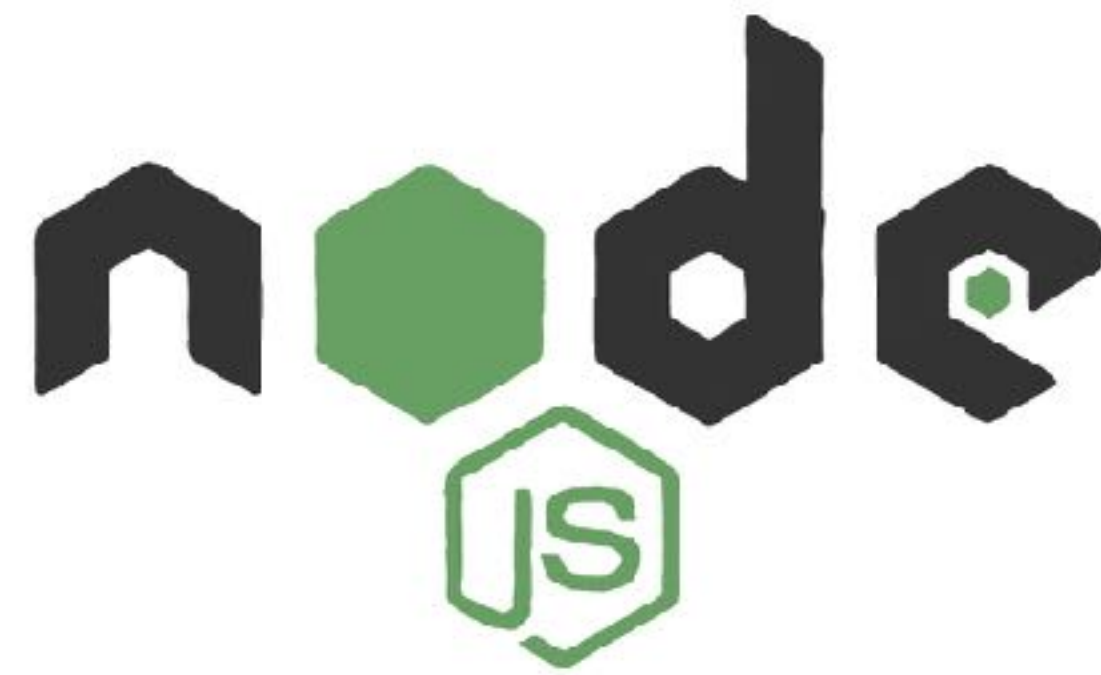
Ensure permissions for all services used in course

Local AWS credentials are located at:

OSX & Linux - `~/ .aws/credentials`

Windows - `C:\Users\<you>\.aws\credentials`

# Node.js Platform



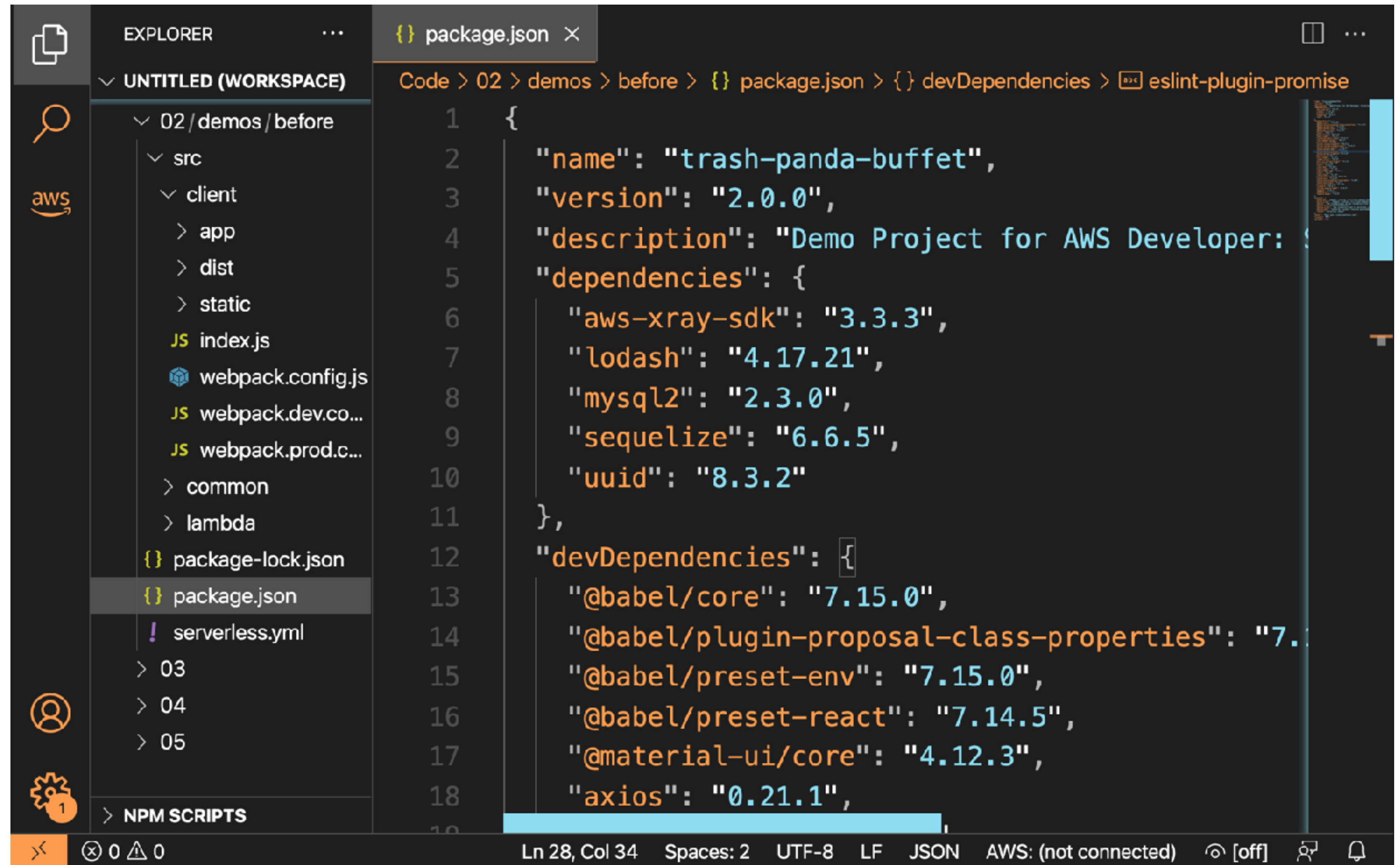
Download at [nodejs.org](https://nodejs.org)

Version 16+

# Code Editor

Try VS Code!

Download at  
[code.visualstudio.com](https://code.visualstudio.com)



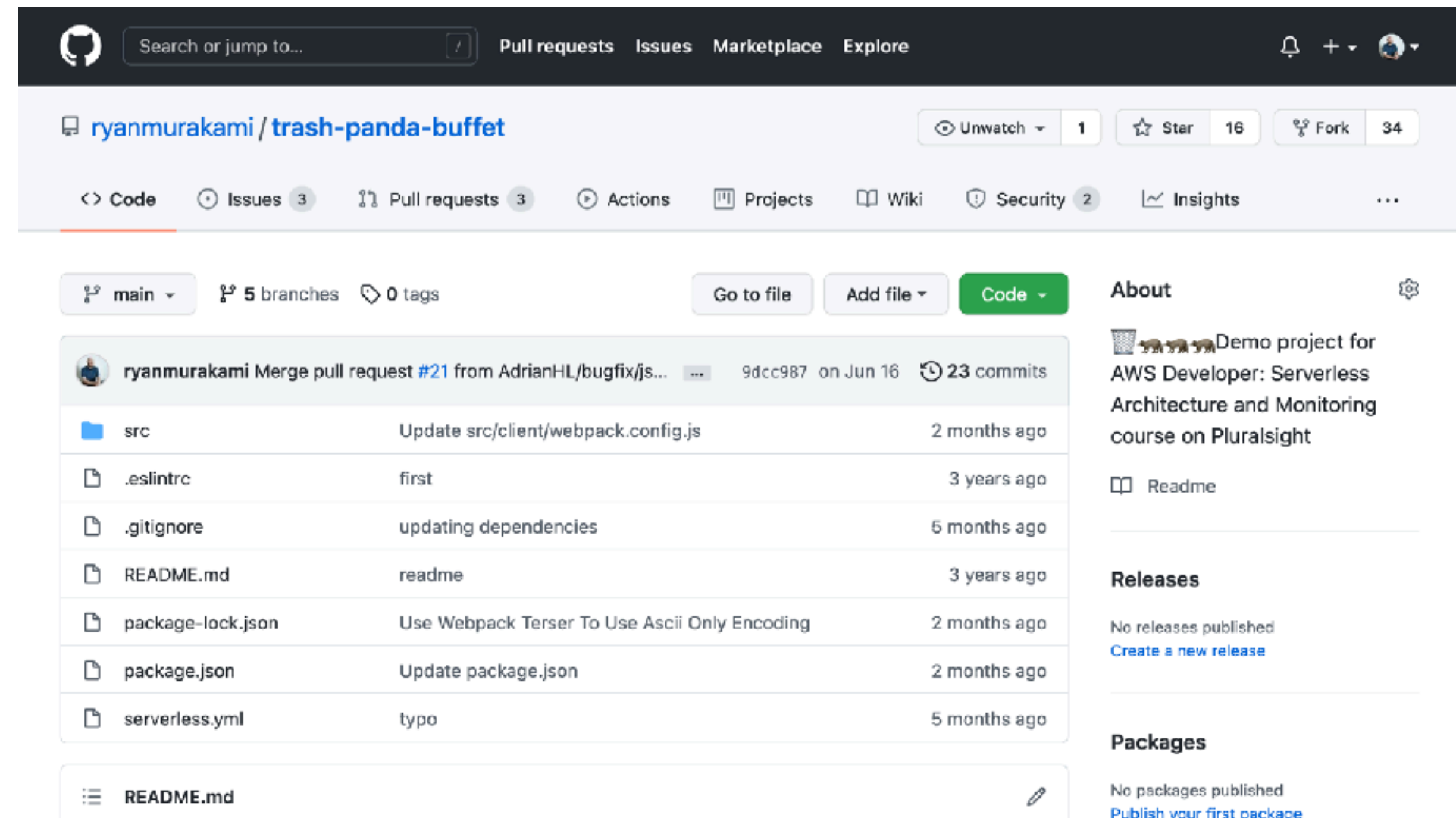
The screenshot displays the Visual Studio Code interface. On the left, the Explorer sidebar shows a project structure under 'UNTITLED (WORKSPACE)'. The structure includes a folder '02 / demos / before' which contains a 'src' folder. Inside 'src', there is a 'client' folder containing 'app', 'dist', and 'static' subfolders, along with files 'index.js', 'webpack.config.js', 'webpack.dev.co...', and 'webpack.prod.c...'. Below the 'client' folder are 'common' and 'lambda' folders, and files 'package-lock.json' and 'package.json'. At the bottom of the Explorer is the 'NPM SCRIPTS' section. The main editor area shows the 'package.json' file with the following content:

```
1 {
2   "name": "trash-panda-buffet",
3   "version": "2.0.0",
4   "description": "Demo Project for AWS Developer:",
5   "dependencies": {
6     "aws-xray-sdk": "3.3.3",
7     "lodash": "4.17.21",
8     "mysql2": "2.3.0",
9     "sequelize": "6.6.5",
10    "uuid": "8.3.2"
11  },
12  "devDependencies": {
13    "@babel/core": "7.15.0",
14    "@babel/plugin-proposal-class-properties": "7.14.5",
15    "@babel/preset-env": "7.15.0",
16    "@babel/preset-react": "7.14.5",
17    "@material-ui/core": "4.12.3",
18    "axios": "0.21.1",
```

The status bar at the bottom indicates the current position is 'Ln 28, Col 34', with settings for 'Spaces: 2', 'UTF-8', 'LF', and 'JSON'. It also shows 'AWS: (not connected)' and a search icon.

# Course Demo Project Code

Or download  
on Pluralsight  
under  
“Exercise files”



[github.com/ryanmurakami/trash-panda-buffet](https://github.com/ryanmurakami/trash-panda-buffet)

# Set an AWS Billing Alarm

