AWS Developer: Serverless Architecture and Monitoring

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

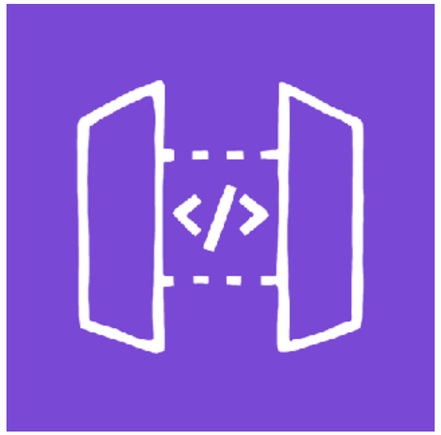
Module Overview

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

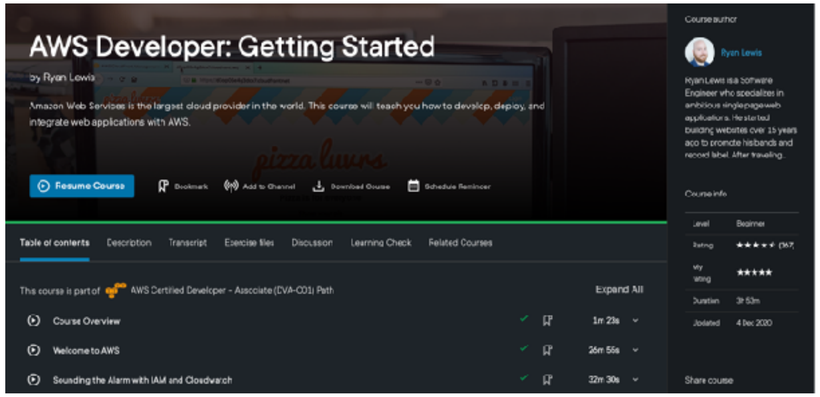
Module Overview

Monitoring Applications in AWS with X-Ray and CloudWatch

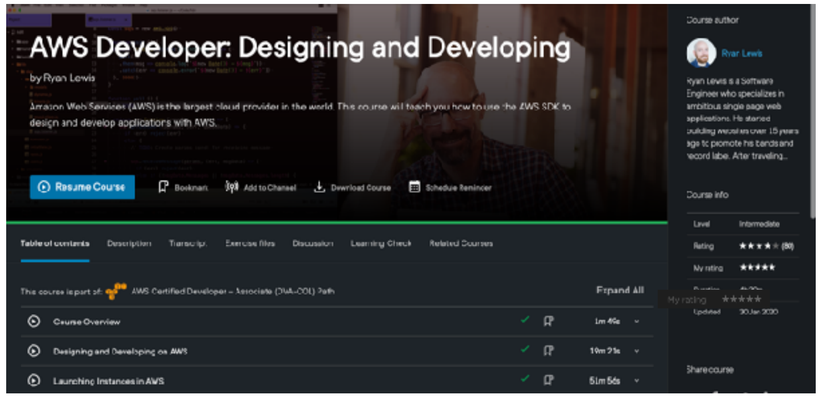
X-Ray

CloudWatch
Alarms

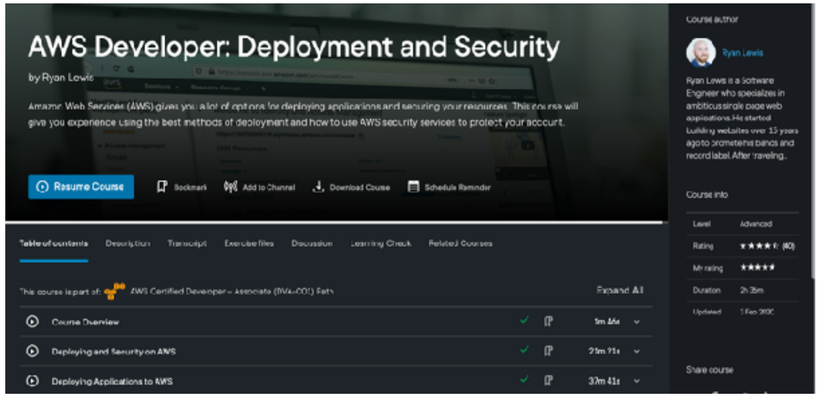
AWS Certified Developer Path at Pluralsight



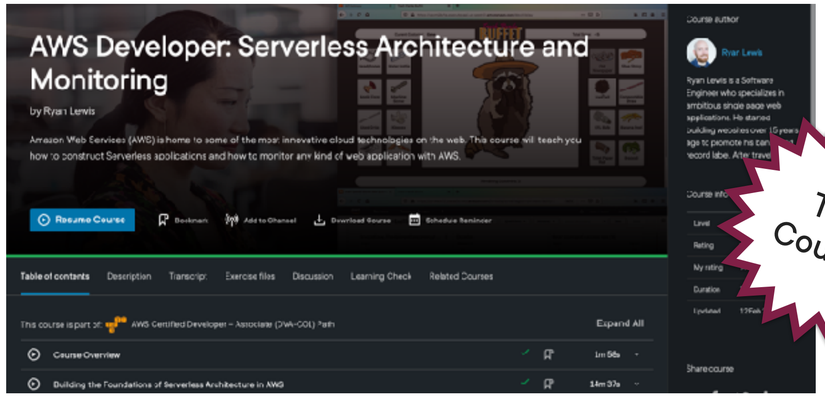
AWS Developer: Getting Started



AWS Developer: Designing and Developing



AWS Developer: Deployment and Security



AWS Developer: Serverless Architecture and Monitoring

Let’s get started!

What is Serverless?

Cloud

Buzzword of
the 2000's

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

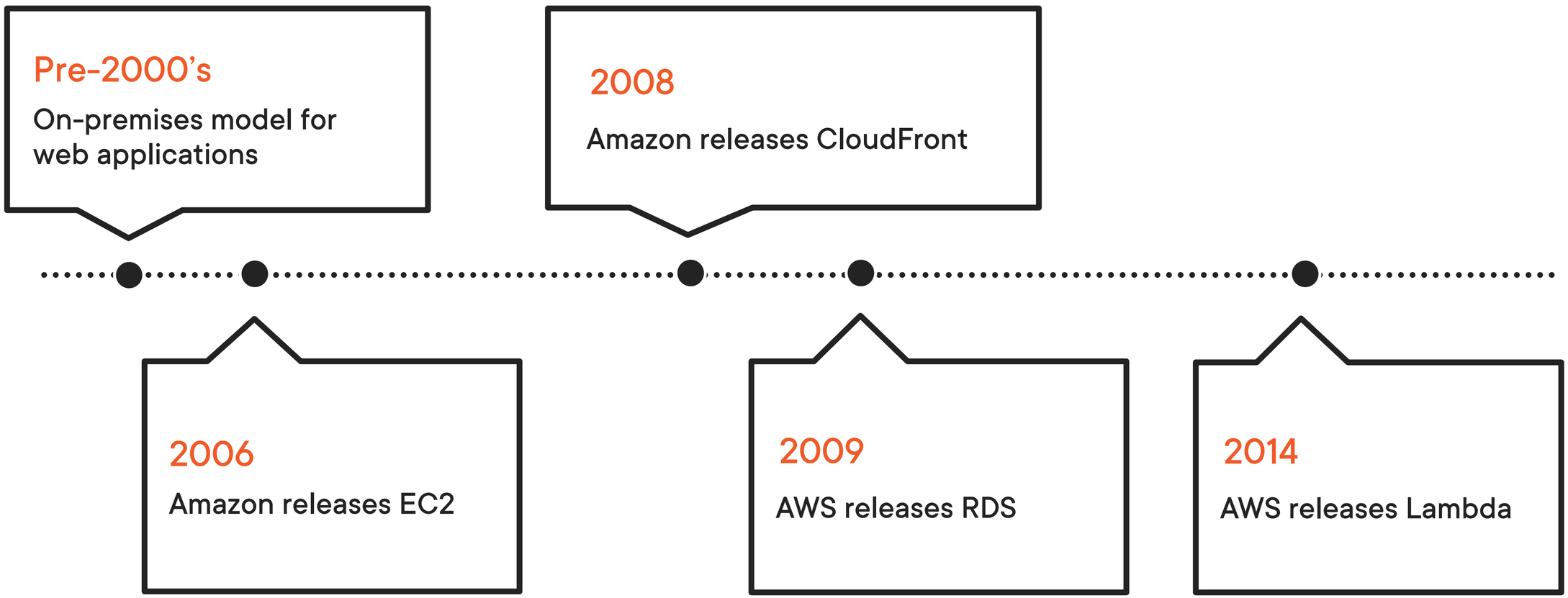
Packages

No packages published

Serverless

Cloud

Ancient Web Infrastructure History



Benefits of Serverless Architecture

No Server Management

Lower Costs

Abstracted Infrastructure

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

Pay for What You Use

Pay only when your code runs

Stateless

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

Event Based

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

Serverless in a Nutshell

Abstracted Infrastructure

Pay for What You Use

Stateless

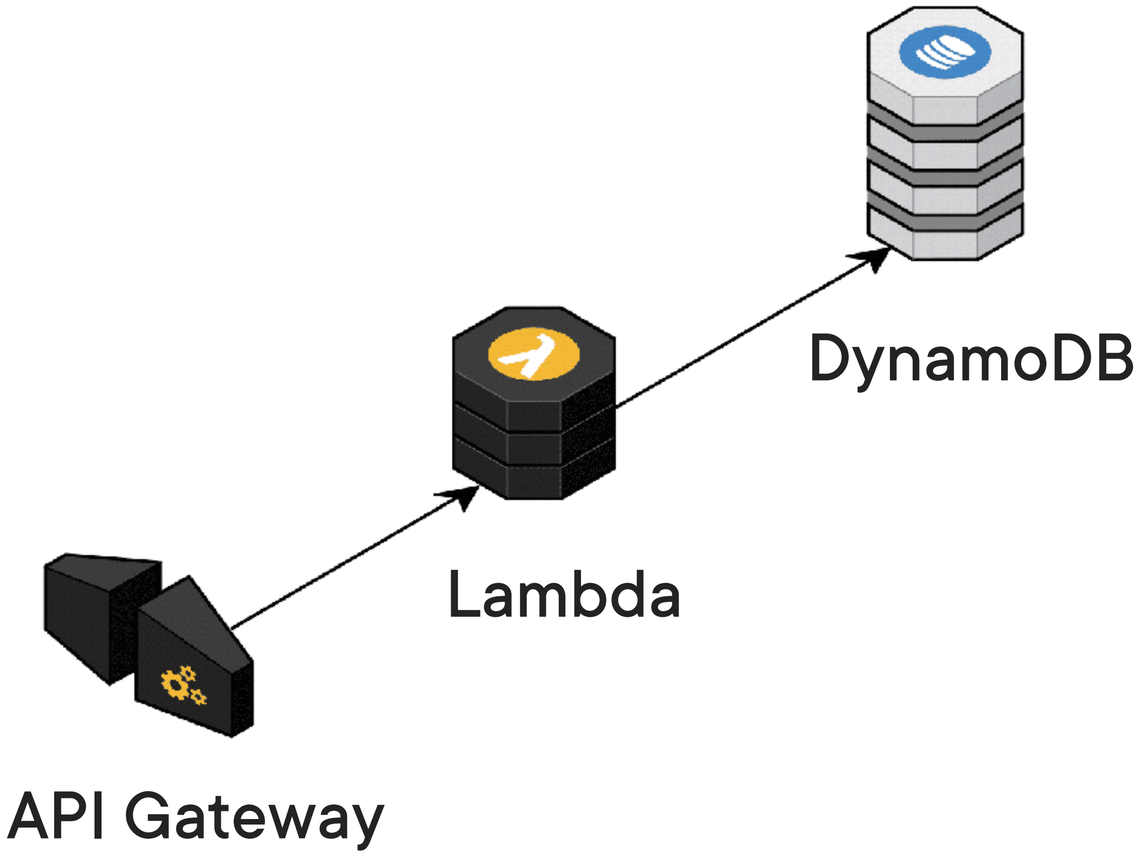
Event Based

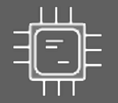
Architecting a Serverless Application

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

Persistence

RDS, DynamoDB, or ElastiCache

SQL or NoSQL?

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

Use RDS Proxy

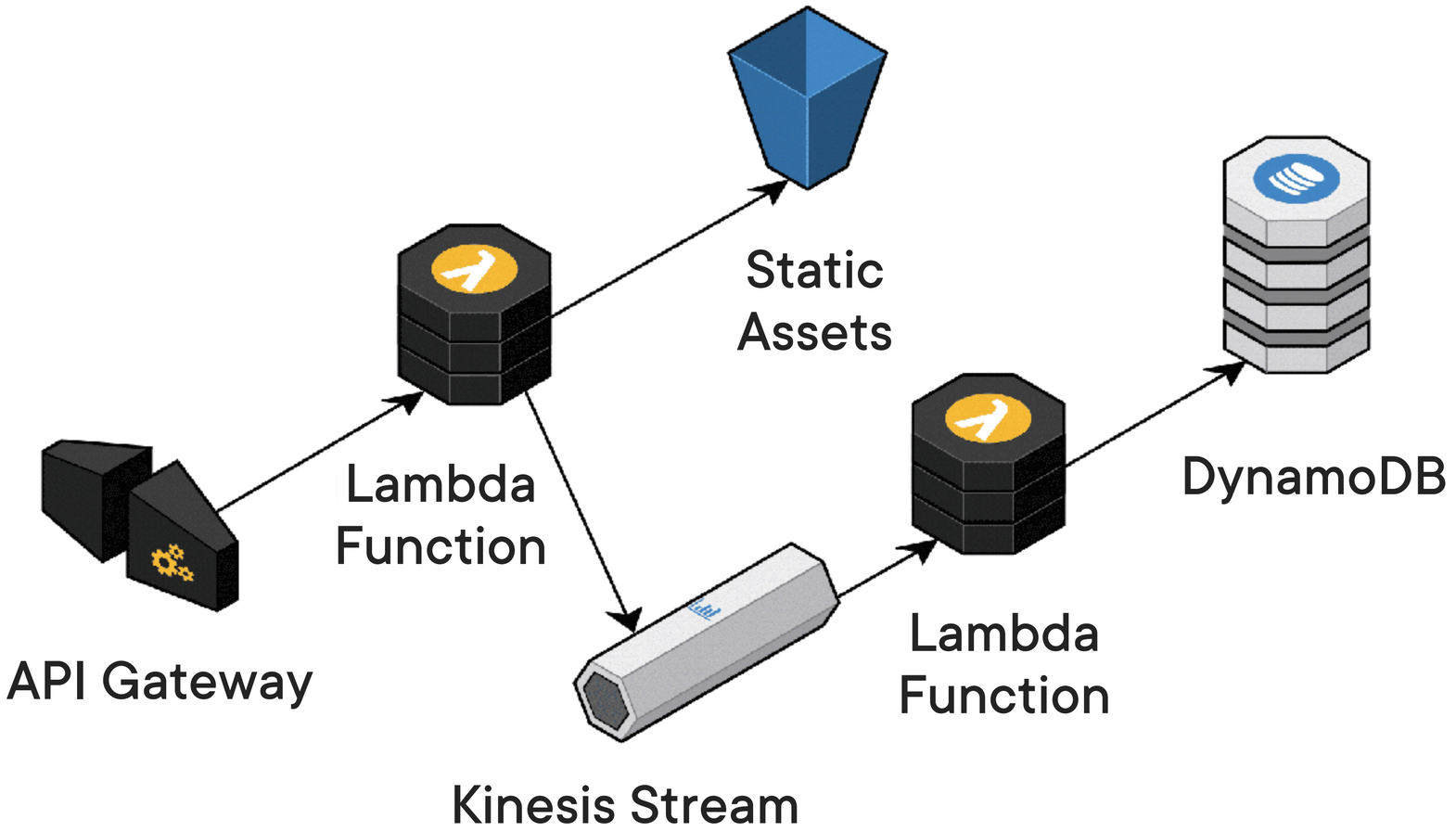
Eventing

Various AWS Services

API Gateway for web apps

Kinesis or SQS for messaging

Four Pillars of Serverless at Work



The Serverless Framework

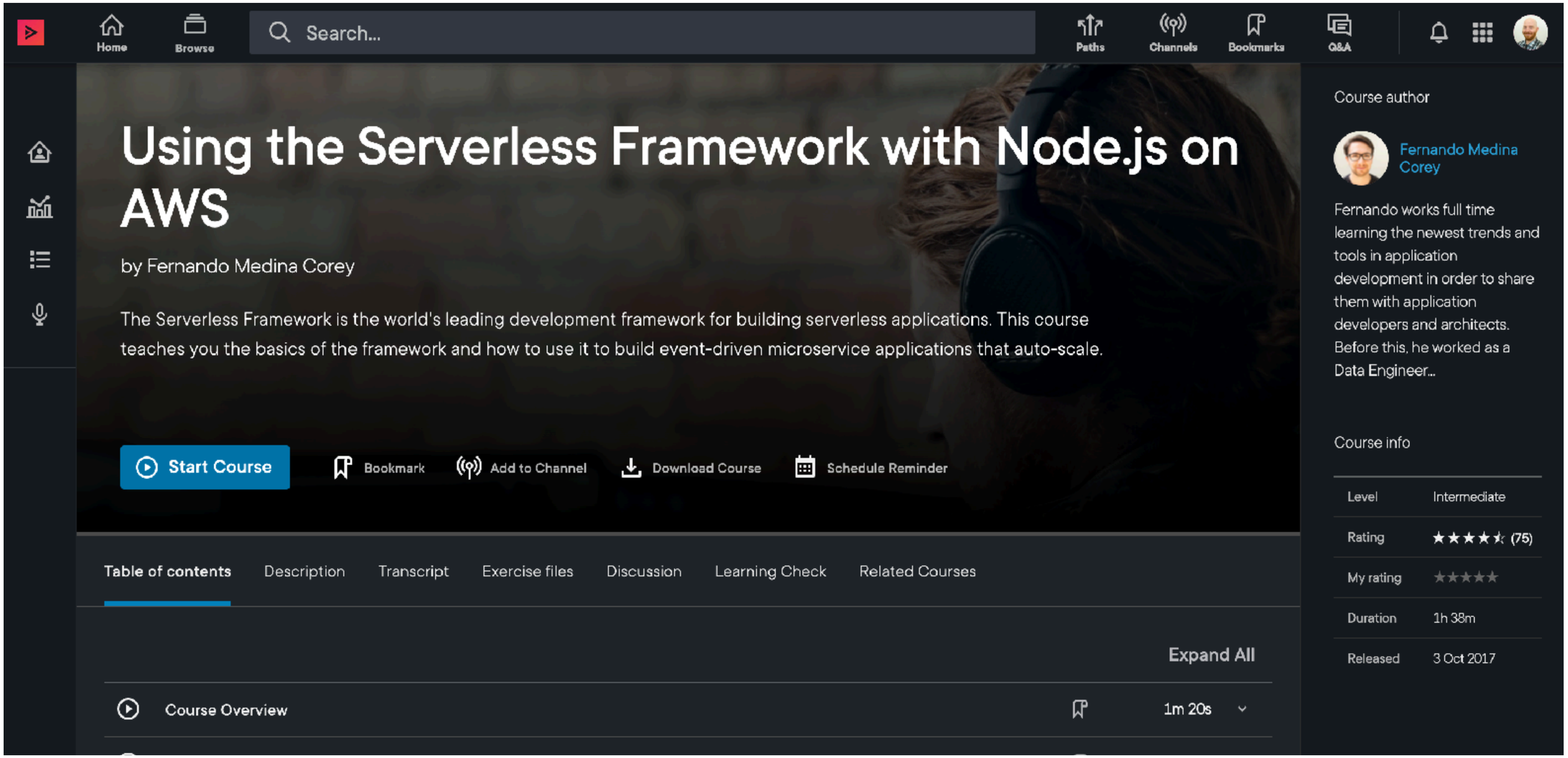
Why Use the Serverless Framework?

Simple and easy deployment

Easy to reproduce architecture

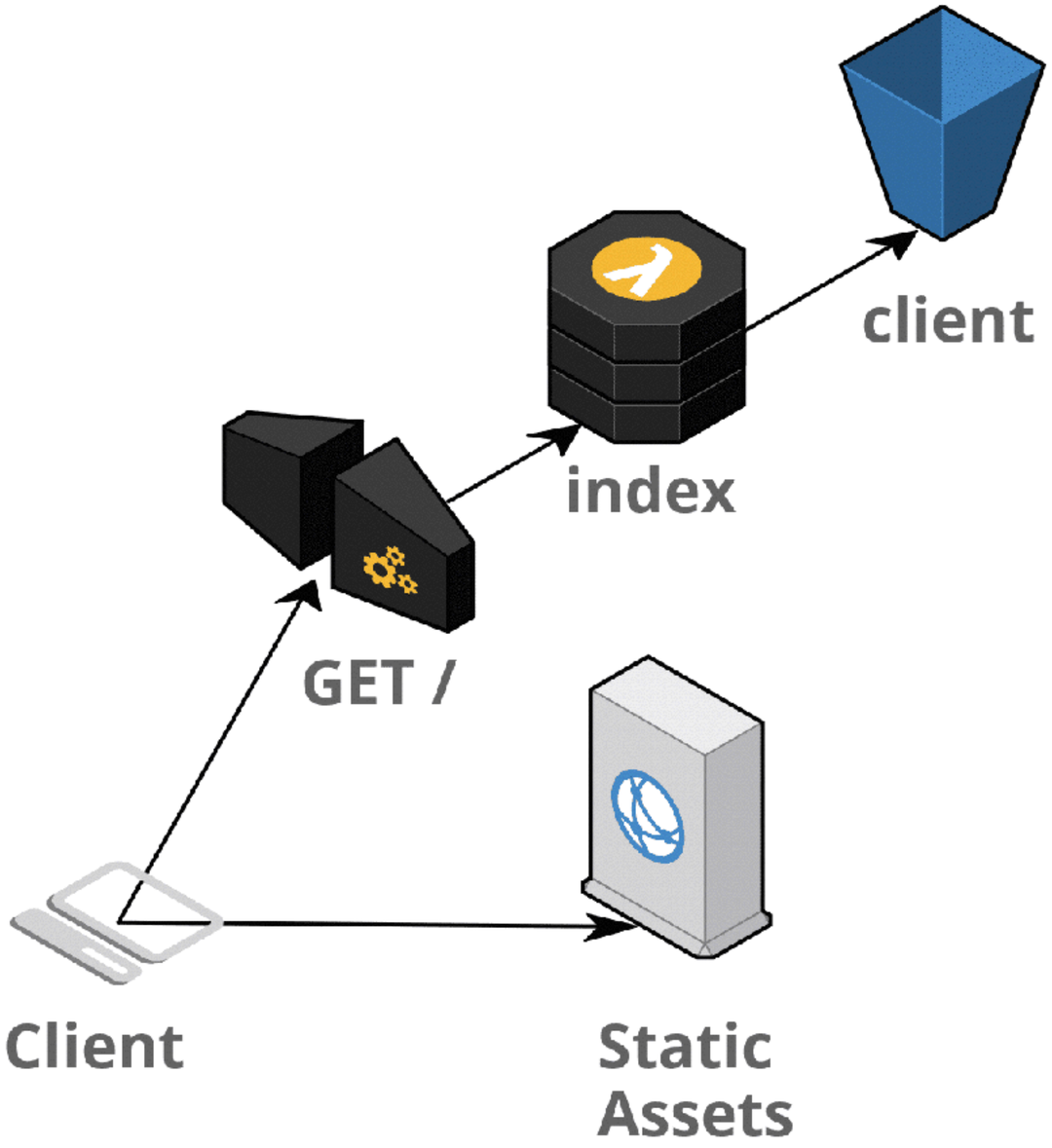
Local execution for development and debugging

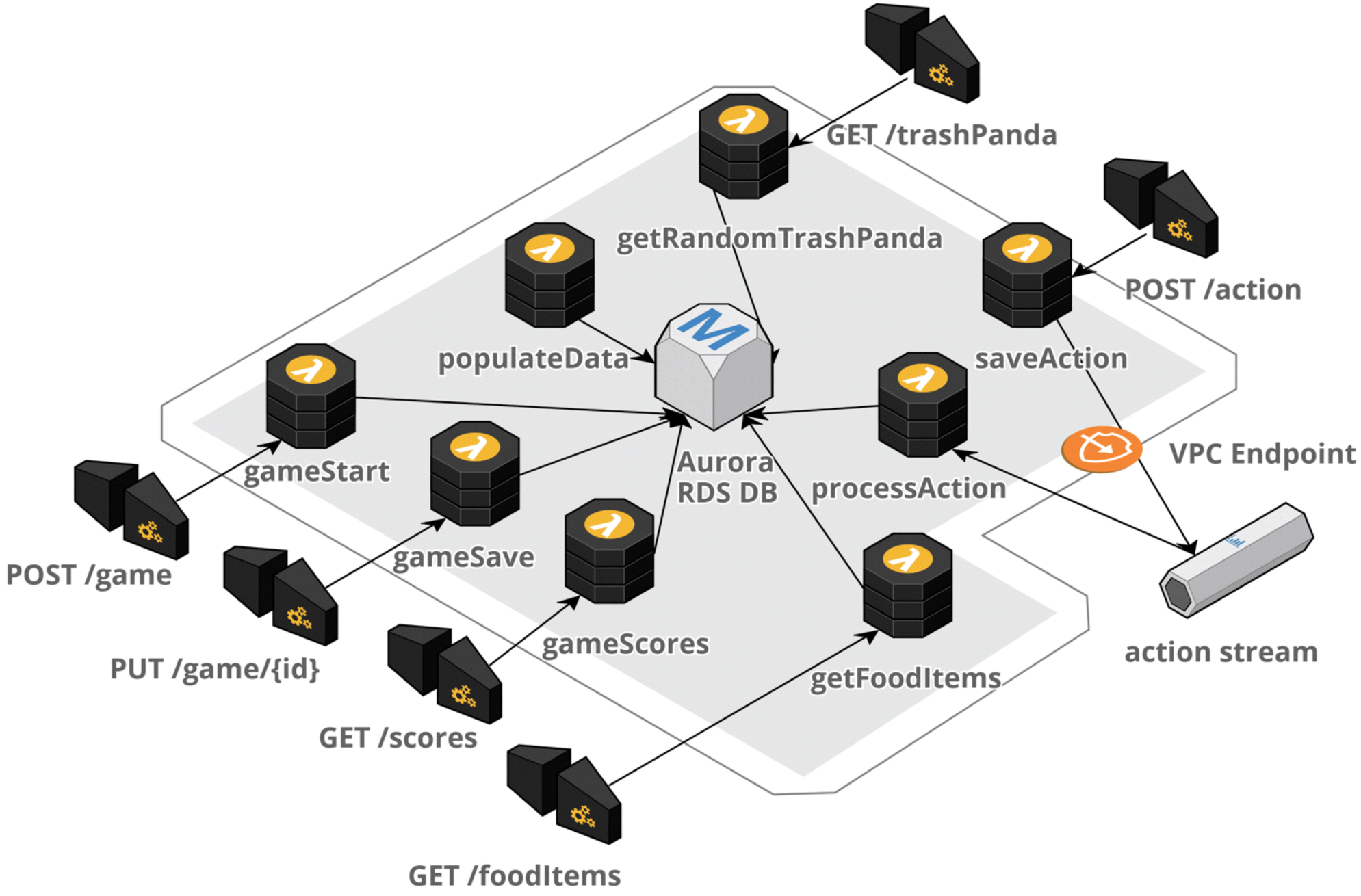
More Adventures in the Serverless Framework



This won’t be on the test

Trash Panda Buffet


client
index
GET /
Client
Static
Assets


GET /trashPanda
getRandomTrashPanda
POST /action
populateData
saveAction
gameStart
Aurora
RDS DB
processAction
VPC Endpoint
POST /game
gameSave
gameScores
action stream
PUT /game/{id}
getFoodItems
GET /scores
GET /foodItems

Before We Start

AWS CLI

Download and install AWS CLI

Configure with a user's access key and secret

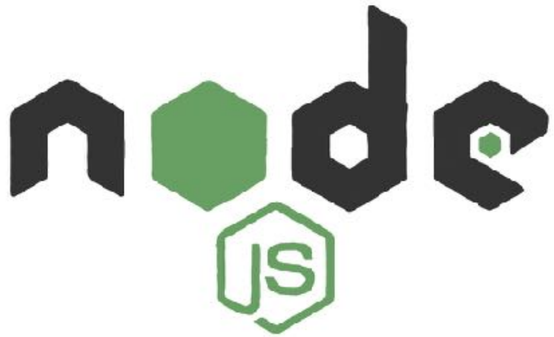
Ensure permissions for all services used in course

Local AWS credentials are located at:

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

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

Node.js Platform



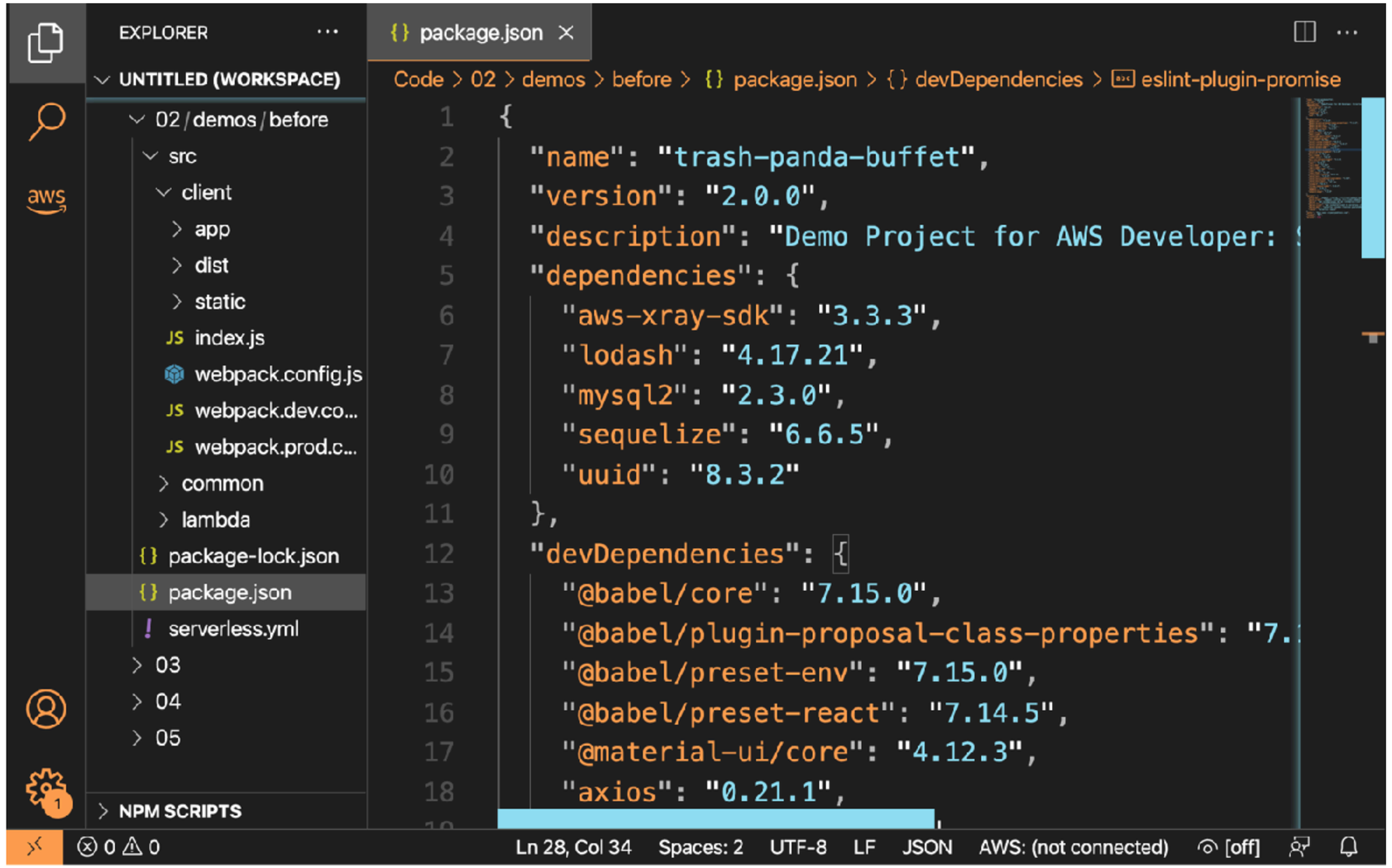
Download at nodejs.org

Version 16+

Code Editor

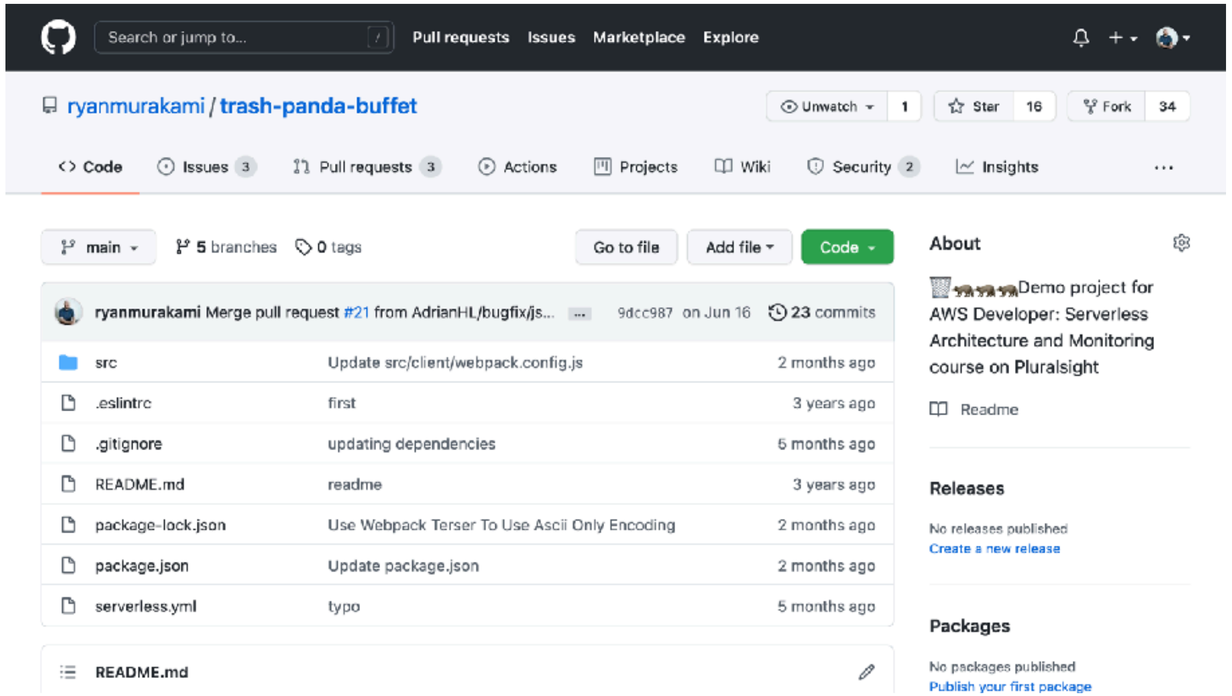
Try VS Code!

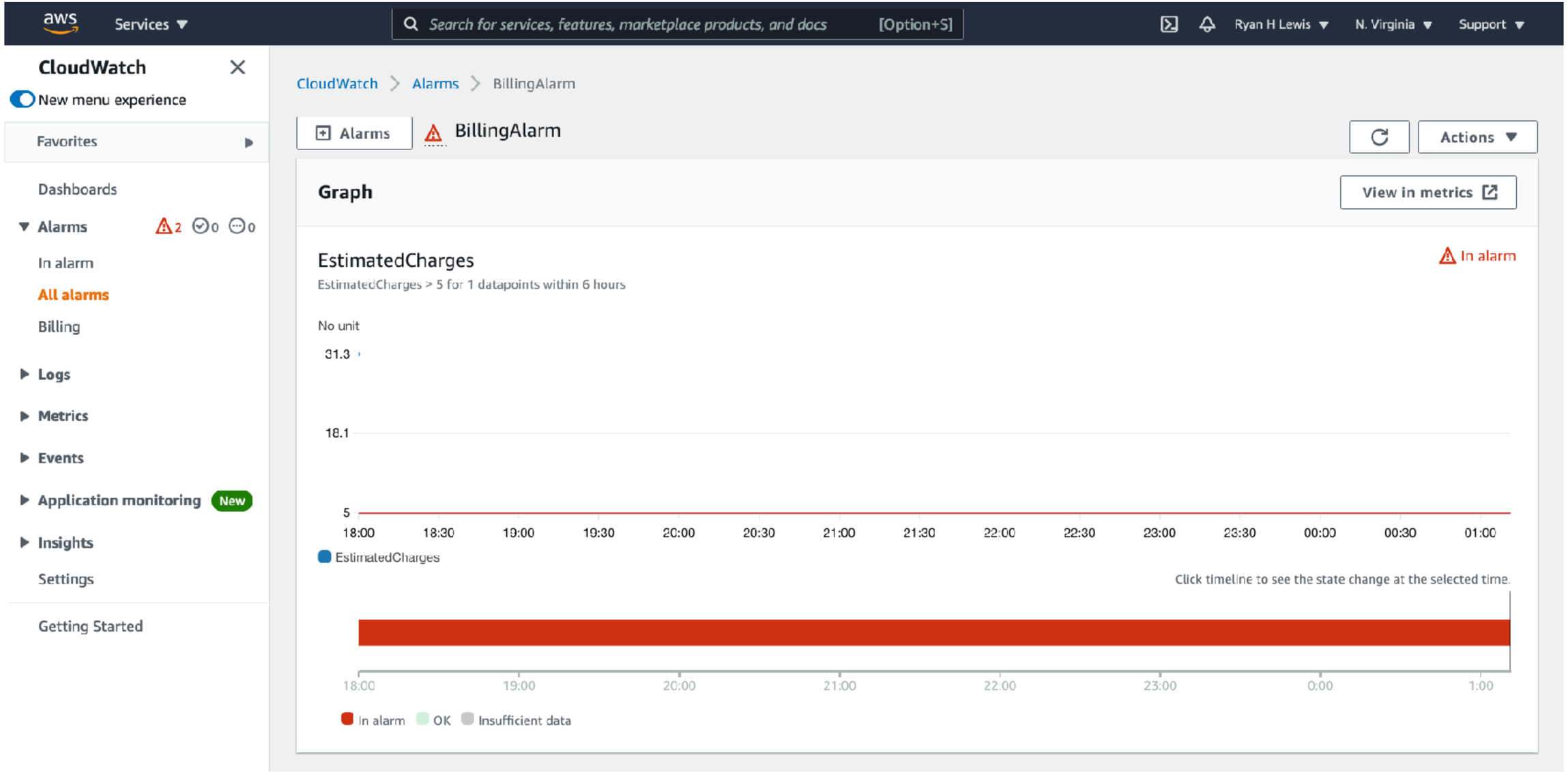
Download at
code.visualstudio.com



Course Demo Project Code

Or download
on Pluralsight
under
“Exercise files”



github.com/ryanmurakami/trash-panda-buffet

Set an AWS Billing Alarm