

A CLOUD COMPUTING CASE STUDY



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Introduction

The logo for MovieHive, featuring the word "MovieHive" in a yellow, stylized font. To the right of the text is a graphic of three yellow hexagons arranged in a triangular pattern, with the bottom hexagon slightly offset to the right.

Project Overview:

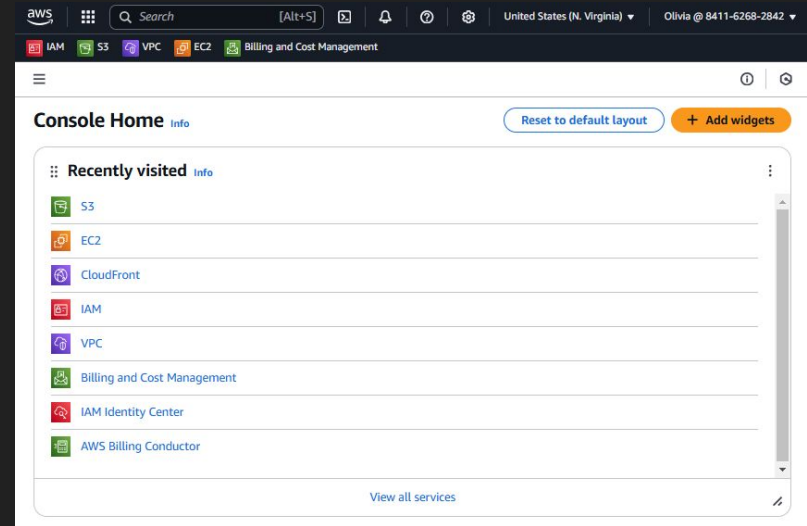
- MovieHive is a Web Application that provides movie details and recommendation based on AWS.

Main Objectives:

- Allow users to search for movies and add them to their favorites.

PURPOSE

Building a scalable cloud-based movie website.
Deploying on AWS instead of a traditional local environment to enhance scalability and maintainability. Aiming to provide faster load times and a more stable service compared to traditional websites.



FEATURES

Scalable Server Infrastructure

Utilizing AWS EC2 instances to separate the backend API server and database server

Static File Hosting & Performance

Hosting static resources (images, CSS, JavaScript) using AWS S3 to optimize loading speed

Security & API Management

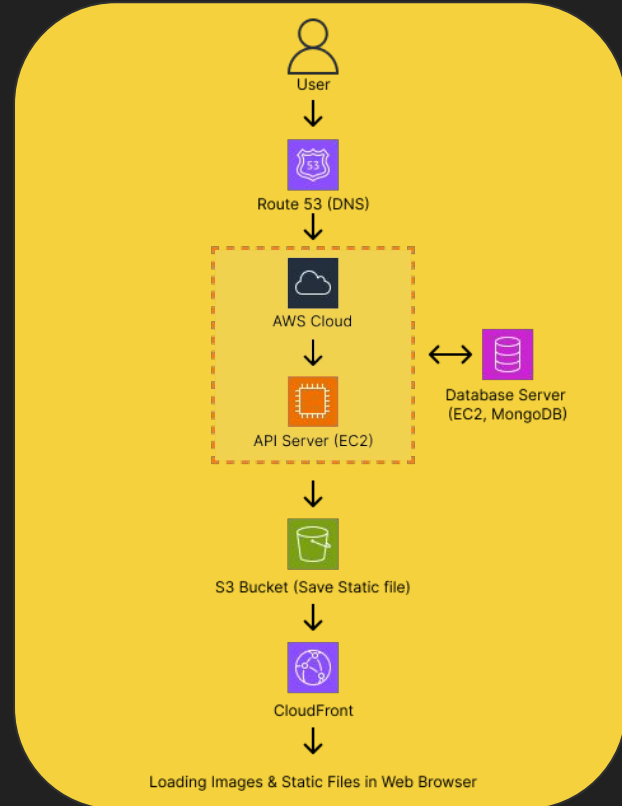
Protecting the API server through AWS Security Groups and IAM role management

CLOUD ARCHITECTURE

Users access the website through their browser, and AWS Route 53 (DNS service) directs their requests to the appropriate server. The EC2 API server processes these requests and interacts with other services to retrieve data.

The database stores movie details, user information, and favorite lists, while AWS S3 holds static content like movie posters. The API server or frontend fetches these images and delivers them to users.

To ensure fast and reliable content delivery, CloudFront (CDN) distributes static and dynamic content across different regions, optimizing the loading speed of images and other assets in the web browser.

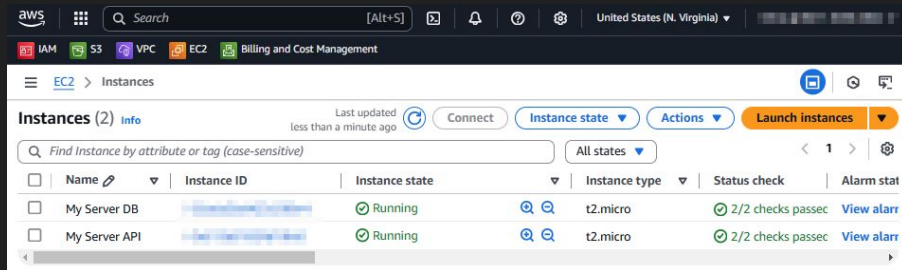


TECHNOLOGY

STACK

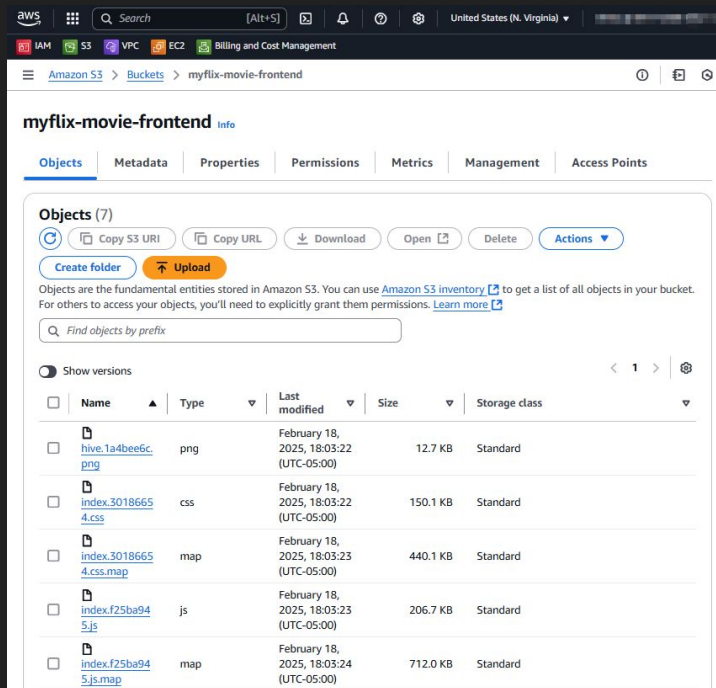
- Frontend: React, SCSS
- Backend: Node.js, MongoDB
- Cloud Service: AWS (EC2, S3), Heroku
- Database: MongoDB Atlas
- CD/CI: GitHub

Setup EC2 Instances (API and DB Instances)



The screenshot shows the AWS Management Console interface for EC2 Instances. The top navigation bar includes the AWS logo, a search bar, and various service icons (IAM, S3, VPC, EC2, Billing and Cost Management). The main content area is titled "Instances (2)" and shows a table of two instances: "My Server DB" and "My Server API". Both instances are in the "Running" state, using the "t2.micro" instance type, and have "2/2 checks passed".

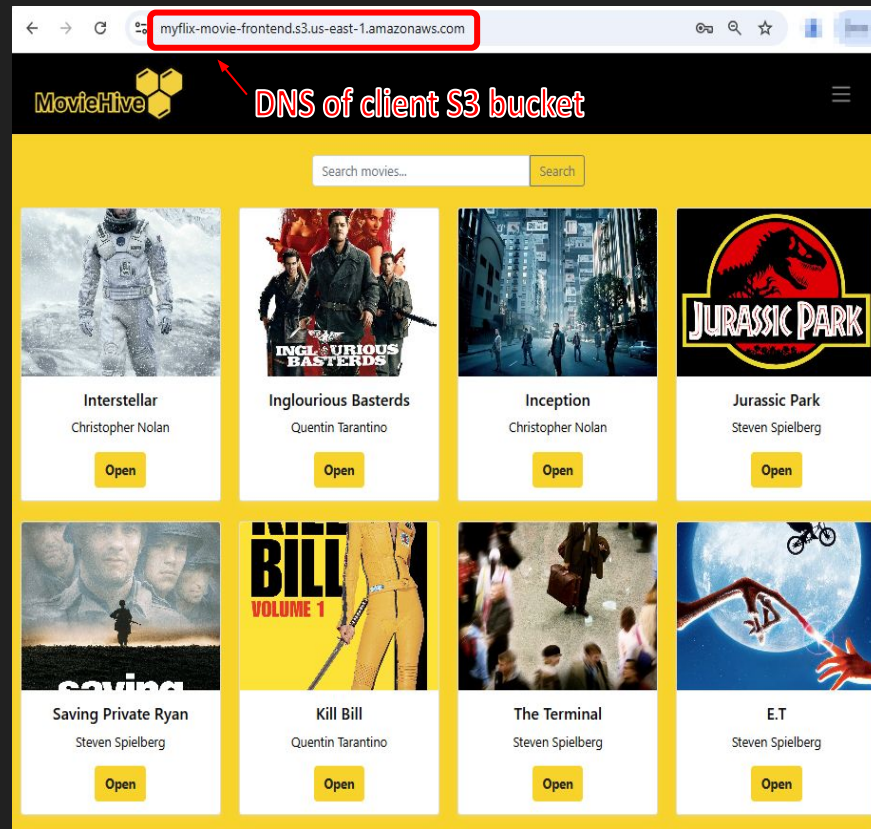
Name	Instance ID	Instance state	Instance type	Status check	Alarm state
My Server DB	[redacted]	Running	t2.micro	2/2 checks passed	View alarm
My Server API	[redacted]	Running	t2.micro	2/2 checks passed	View alarm



The screenshot shows the AWS Management Console interface for S3 Buckets. The top navigation bar includes the AWS logo, a search bar, and various service icons (IAM, S3, VPC, EC2, Billing and Cost Management). The main content area is titled "myflix-movie-frontend" and shows a table of objects stored in the bucket. The objects are listed with their names, types, last modified dates, sizes, and storage classes.

Name	Type	Last modified	Size	Storage class
hive_1a4bee6c.png	png	February 18, 2025, 18:03:22 (UTC-05:00)	12.7 KB	Standard
index30186654.css	css	February 18, 2025, 18:03:22 (UTC-05:00)	150.1 KB	Standard
index30186654.css.map	map	February 18, 2025, 18:03:23 (UTC-05:00)	440.1 KB	Standard
index.f25ba945.js	js	February 18, 2025, 18:03:23 (UTC-05:00)	206.7 KB	Standard
index.f25ba945.js.map	map	February 18, 2025, 18:03:24 (UTC-05:00)	712.0 KB	Standard

AWS Infrastructure Setup



The screenshot shows a web browser displaying a movie catalog. The address bar shows the URL "myflix-movie-frontend.s3.us-east-1.amazonaws.com". The page features a search bar and a grid of movie posters. Each poster includes the movie title, director, and a button to "Open".

myflix-movie-frontend.s3.us-east-1.amazonaws.com

MovieHive

DNS of client S3 bucket

Search movies... Search

Movie Title	Director	Action
Interstellar	Christopher Nolan	Open
Inglourious Basterds	Quentin Tarantino	Open
Inception	Christopher Nolan	Open
Jurassic Park	Steven Spielberg	Open
Saving Private Ryan	Steven Spielberg	Open
Kill Bill	Quentin Tarantino	Open
The Terminal	Steven Spielberg	Open
E.T.	Steven Spielberg	Open

PAGE VIEWS

MovieHive

Account Information

Username: tester11
Email: tester11@gmail.com

Profile Update

Username

tester11

Password

Enter Password

Email

tester11@gmail.com

Birthday

mm/dd/yyyy

Update Profile

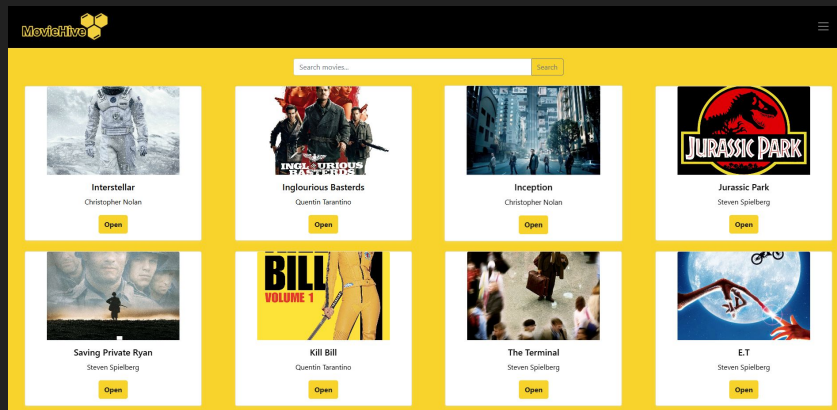
Delete User

Favorite Movies

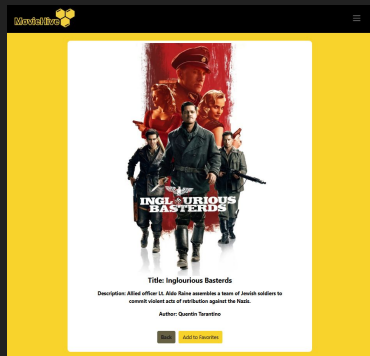
Inception

Remove from list

Profile View



Main View



Movie View

MovieHive

Name

Username

Password

Email

Birthday

mm/dd/yyyy

Submit

Sign-up View

MovieHive

Welcome To Movie APP!

Username

Password

Submit

New to Movie App? Sign up Now

Login View