Cloud Computing Group -18

- SET UP AN AWS LAMBDA APP TO PROCESS IMAGES.

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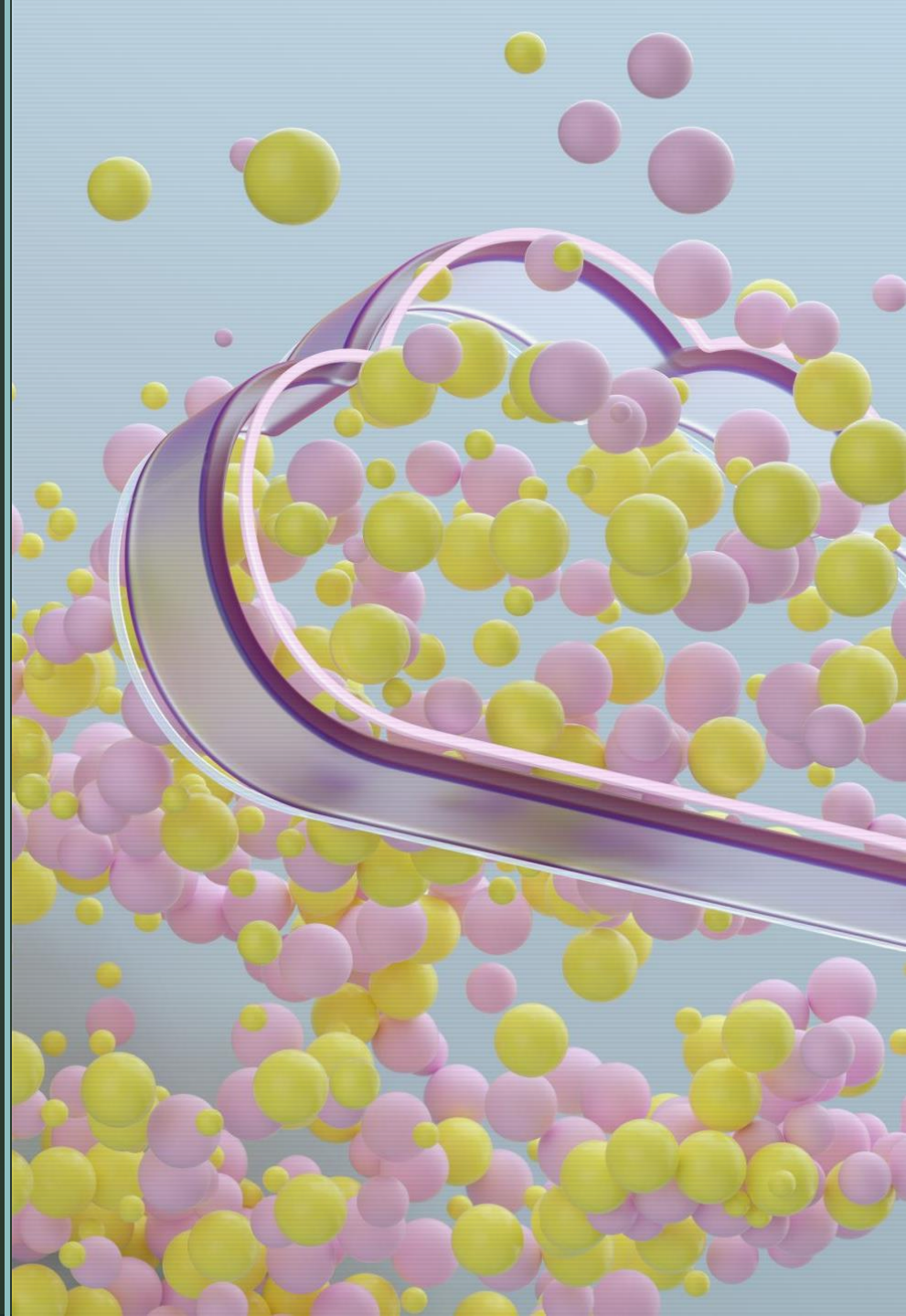


SET UP AN AWS LAMBDA APP TO PROCESS IMAGES.

Make sure that AWS Lambda is scalable.

For performance tracking, use Cloud watch.

Utilise Locust to assess an EC2 instance's performance under stress.

AWS Lambda: WHY?

- 1. Cost-effective: There are no up-front fees or server idle charges, you just pay for the compute time your code needs.

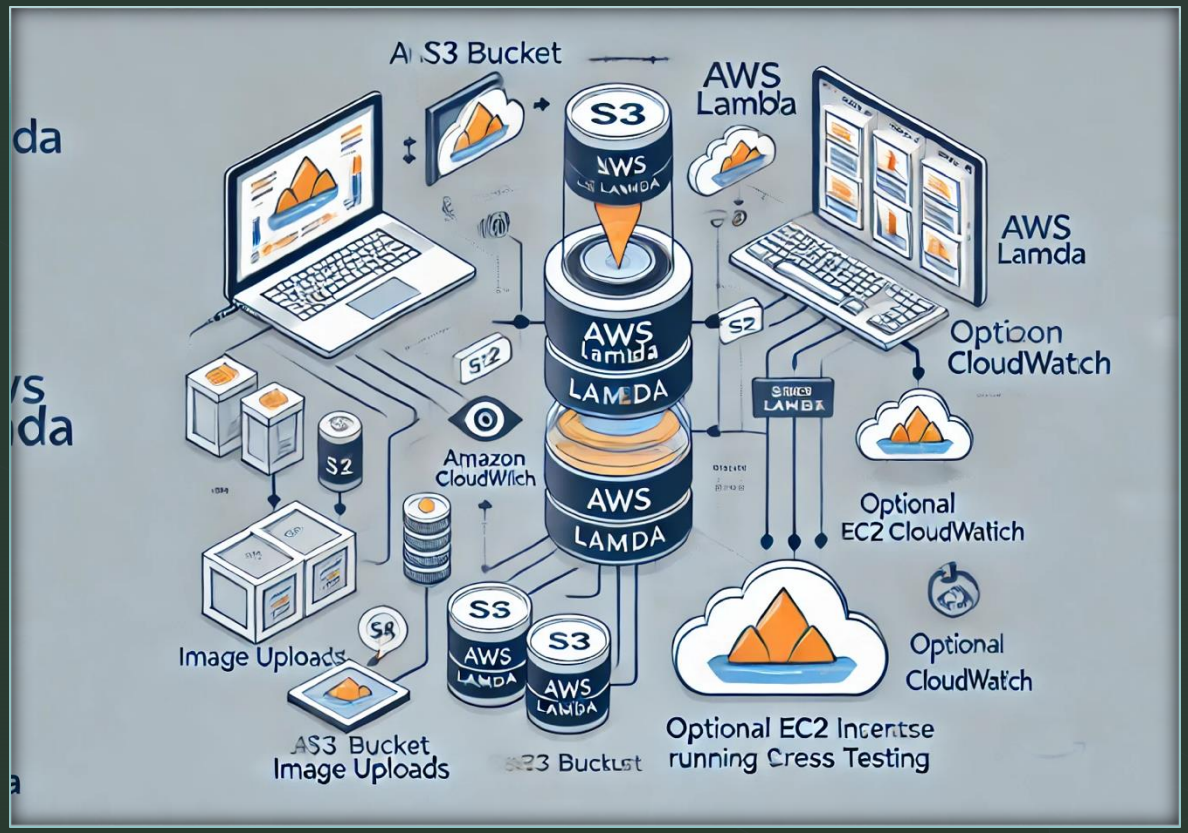
  2. Scalability: Adapts to changing workloads on its own without the need for human involvement.

  3. Integration is simple: It integrates easily with other AWS services such as API Gateway, DynamoDB, and S3.

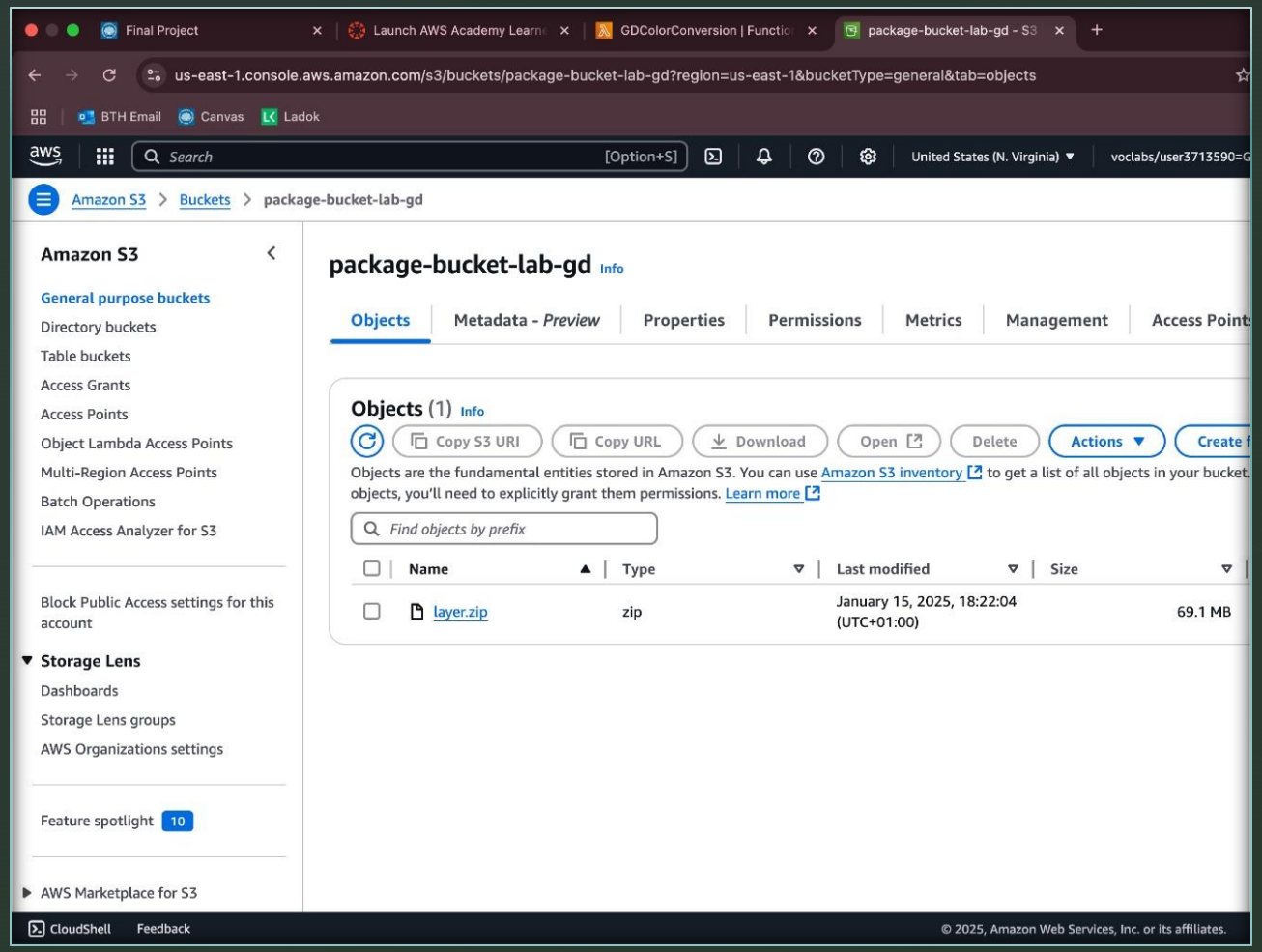
- 4. Event-Driven: Runs code in reaction to events like modified databases, file uploads, or HTTP requests.

ARCHITECTURE DIAGRAM

- 1.Uploads by Users: Pictures are added to an S3 bucket.
- 2. These photos are processed using AWS Lambda.
- 3. Processed Pictures: Stored in an additional S3 bucket
- 4. CloudWatch: Keeps an eye on logs and performance data.
- 5. Stress Testing: To evaluate scalability, Locust operates on an EC2 instance.



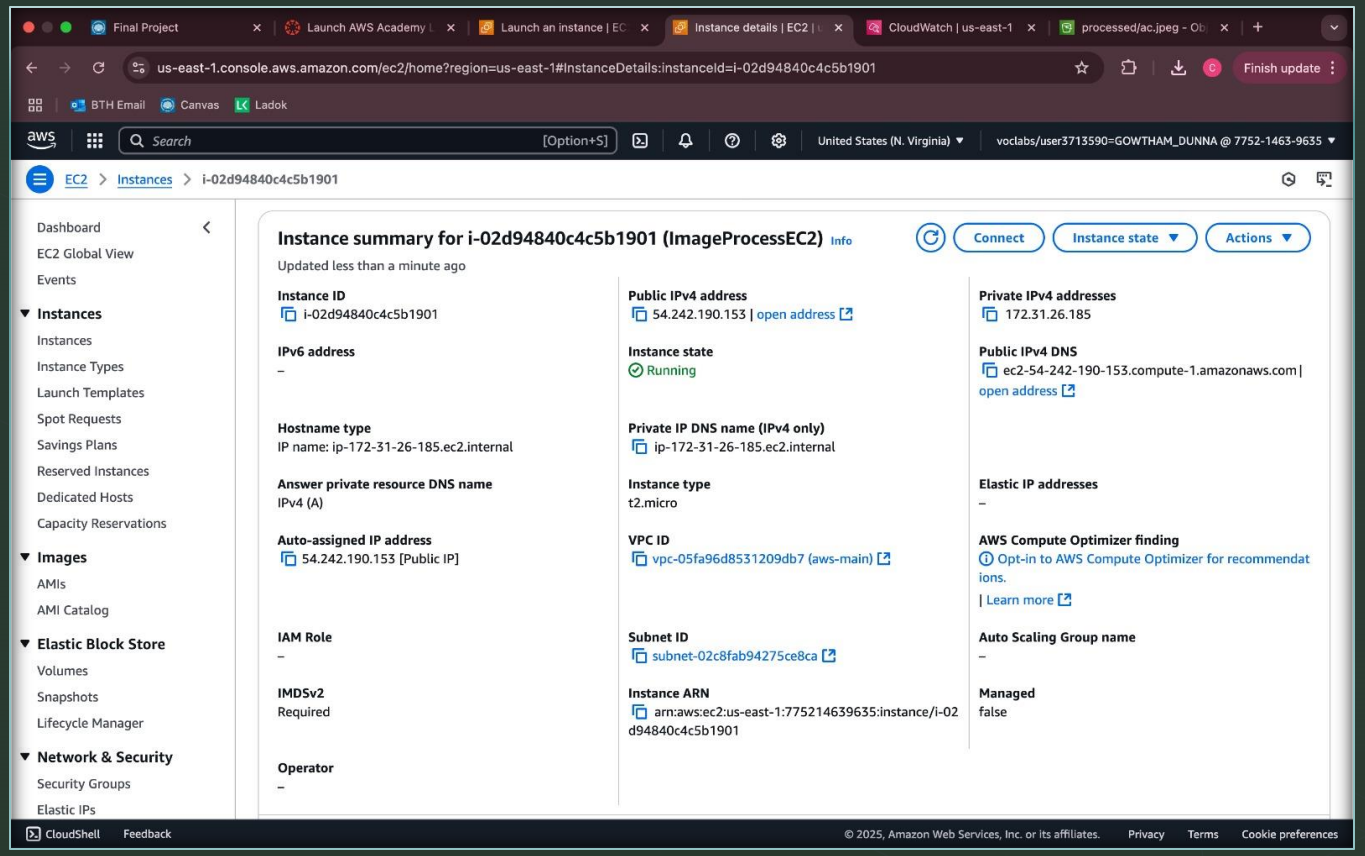
OpenCV and numpy packages are stored in an S3 bucket.



- A picture uploaded by a user to the S3 bucket is processed by AWS Lambda according to pre-established tasks. The altered picture is then saved back in the S3 bucket in a specified folder or location when processing is finished. The automated nature of this workflow guarantees effective picture processing without the need for human involvement.

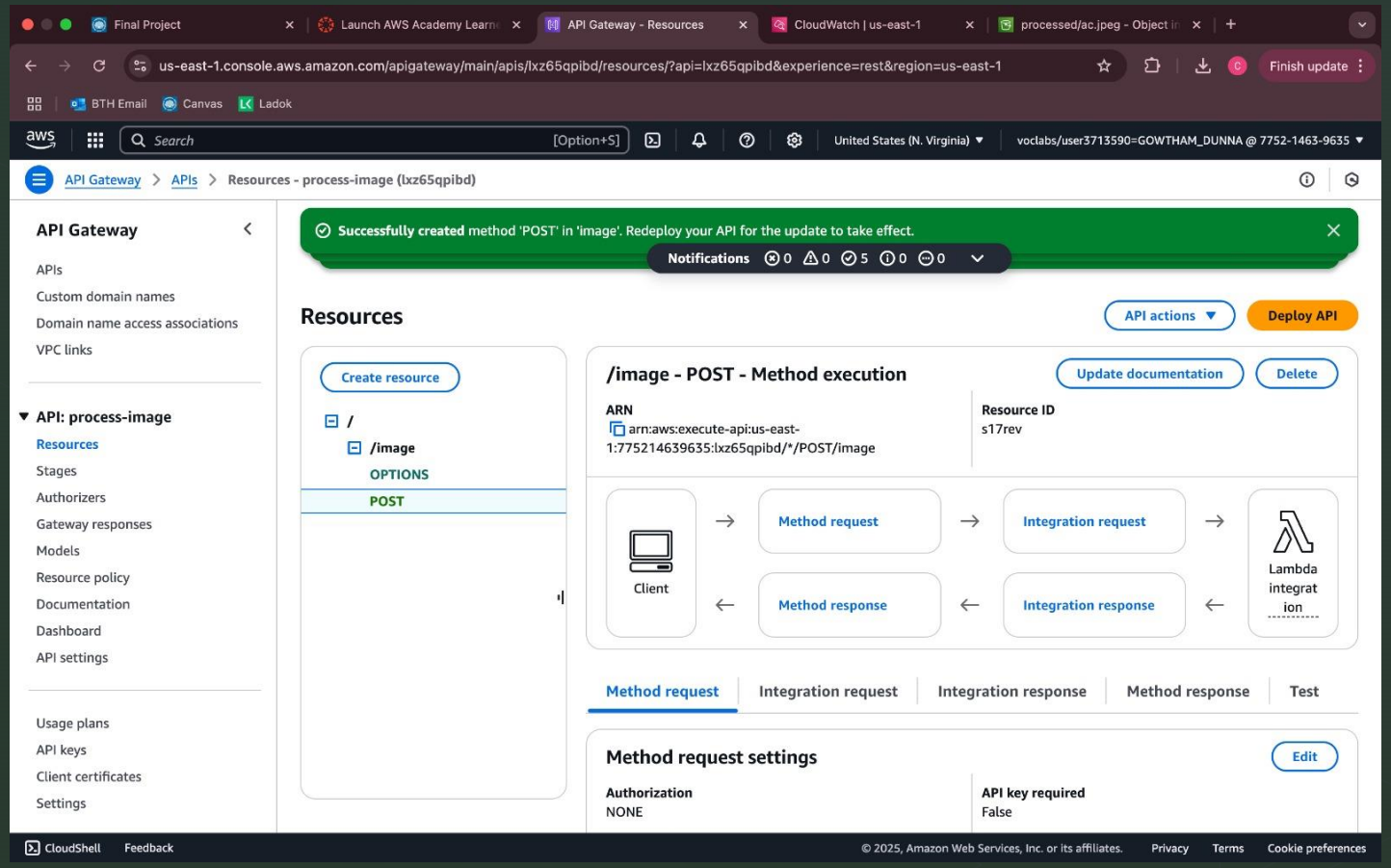
IMPLEMENTATION

- To test the application under various workloads, we deployed an EC2 instance to run Locust, a program that mimics user traffic. This enabled us to assess performance, pinpoint boundaries, and make sure the system could efficiently manage excessive demand.

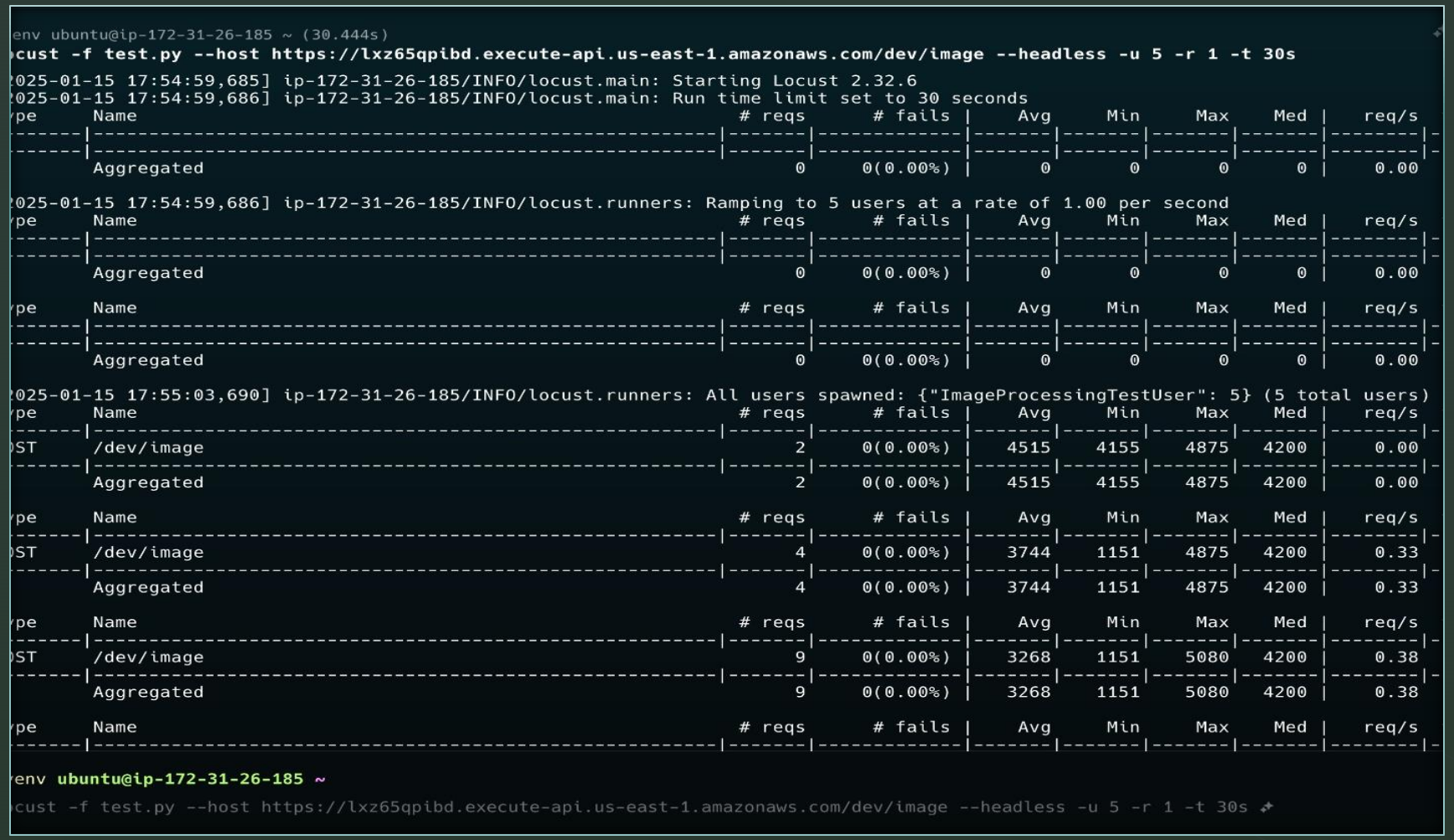


IMPLEMENTATION

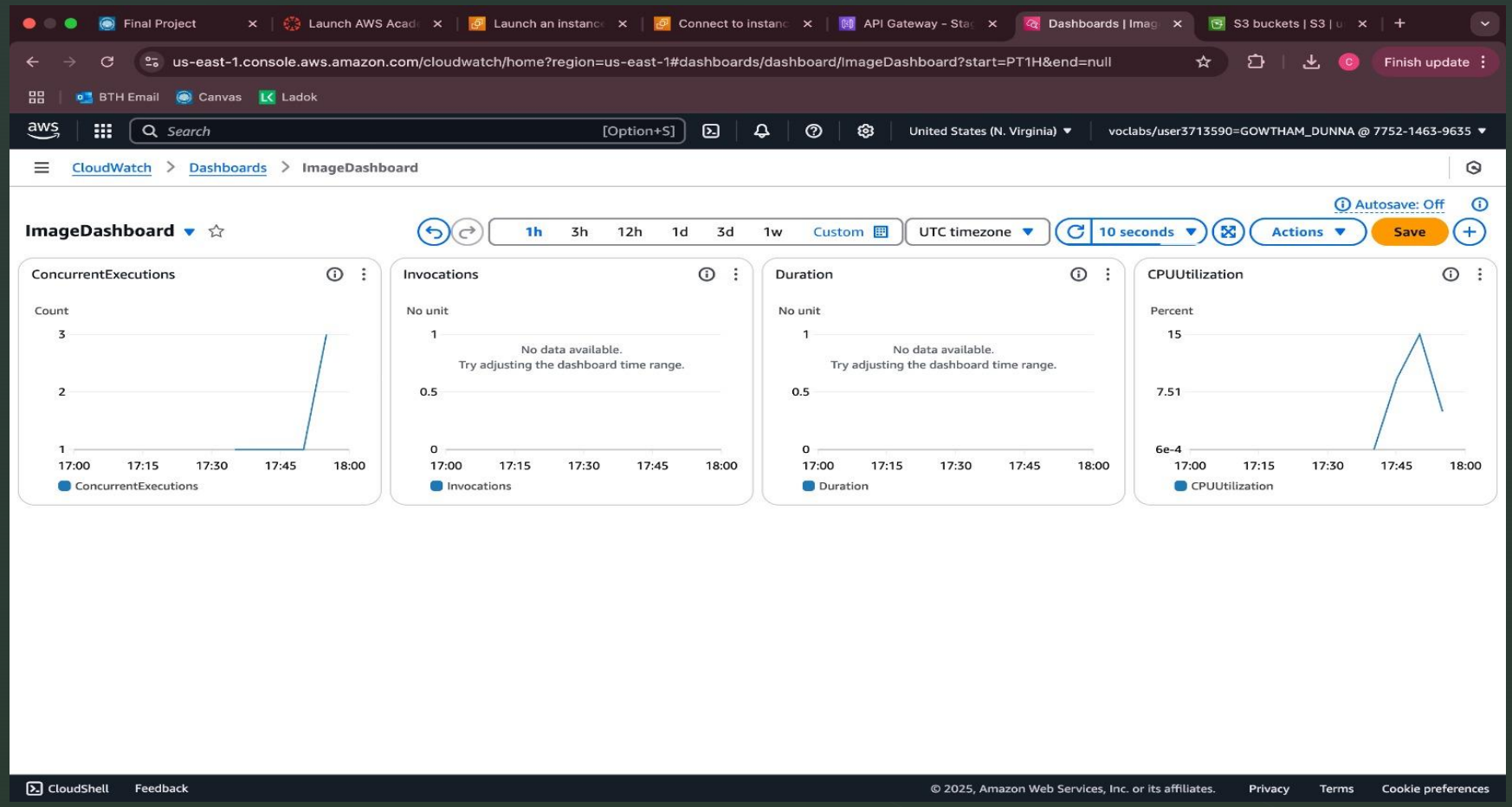
Make an API for the locust test, or lambda function.



Test for stress without locust



RESULTS



1. Scalability: According to stress testing, Lambda performs steadily within bounds even when demand rises.

2. Cost Analysis: Unlike traditional servers, which incur idle resource charges, Lambda is more affordable for workloads that are required on-demand.

Conclusion

- In conclusion, the image processing application's functionality and efficiency were demonstrated by its successful deployment and testing on AWS Lambda. Using Locust for stress testing on an EC2 instance and CloudWatch for performance metrics monitoring, scalability was guaranteed. The application's capacity to manage fluctuating workloads was confirmed by real-time tracking and analysis of critical variables, establishing it as a dependable and expandable solution for image processing jobs.

- THANK YOU