Dynamic Bookings: Auto-Scaling Solutions on AWS

Final Project

Course: Introduction to Cloud Computing - DV1566

by: Seyed Mohammad Hossein Tabatabaei Ashkezari

Department of Computer Science, BTH

Architecture Overview: Seamless Booking Experience

- **Interactive Booking Portal:** User-friendly interface for effortless table reservations.
- **AWS-Integrated Architecture:** Robust and scalable with a frontend application, serverless backend, and managed database services.
- **Performance Validation:** Utilizing Apache JMeter for rigorous stress testing and validation of autoscaling capabilities.
- **Monitoring the Autoscaling Test**: Leveraging AWS CloudWatch and Amplify's built-in monitoring for in-depth performance insights of the autoscaling capabilities"

Project Website

Booking a Table

Please fill in the form below to book a table at our restaurant. Ensure that you select a date within the next 5 days and choose an available table number from 1 to 15.

Name | Email | Table No. | dd/mm/yyyy | Book Table

Number of bookings for table on : 0

https://dev7373.d2f3jrw6p8oqa0.amplifyapp.com/

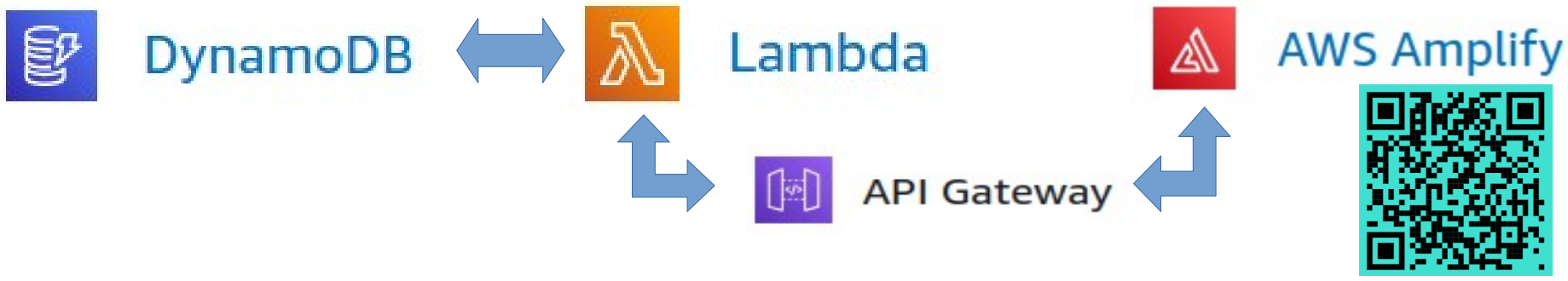
Chosen for serverless execution: Automatic scaling and no infrastructure management

- Event-driven and cost-effective: Pay only for the compute time used
- Integrates seamlessly with other AWS services like DynamoDB and API Gateway
- Facilitates rapid development and deployment of backend functions

- Simplifies deployment and hosting of web applications
- Offers seamless integration with backend services
- Provides easy-to-use interface for managing backend functionalities
- Enhances development workflow with continuous integration and delivery (CI/CD)

- **Scalability:** Seamless scalability is offered by DynamoDB, handling varying loads without the need for manual intervention.
- **Performance:** Consistent, fast performance is maintained, with single-digit millisecond response times during scaling operations.
- **Fully Managed Service:** The operational burden is reduced due to DynamoDB being a fully managed service.
- **Provisioned Capacity:** Efficient cost management is enabled through the specification of capacity.

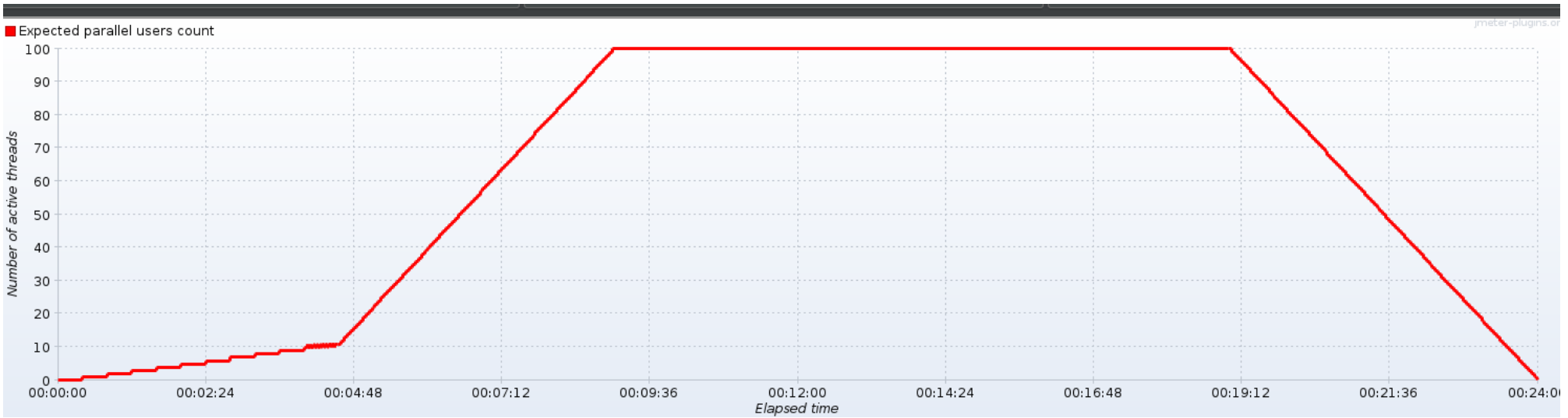
Architecture on AWS



Performance Validation

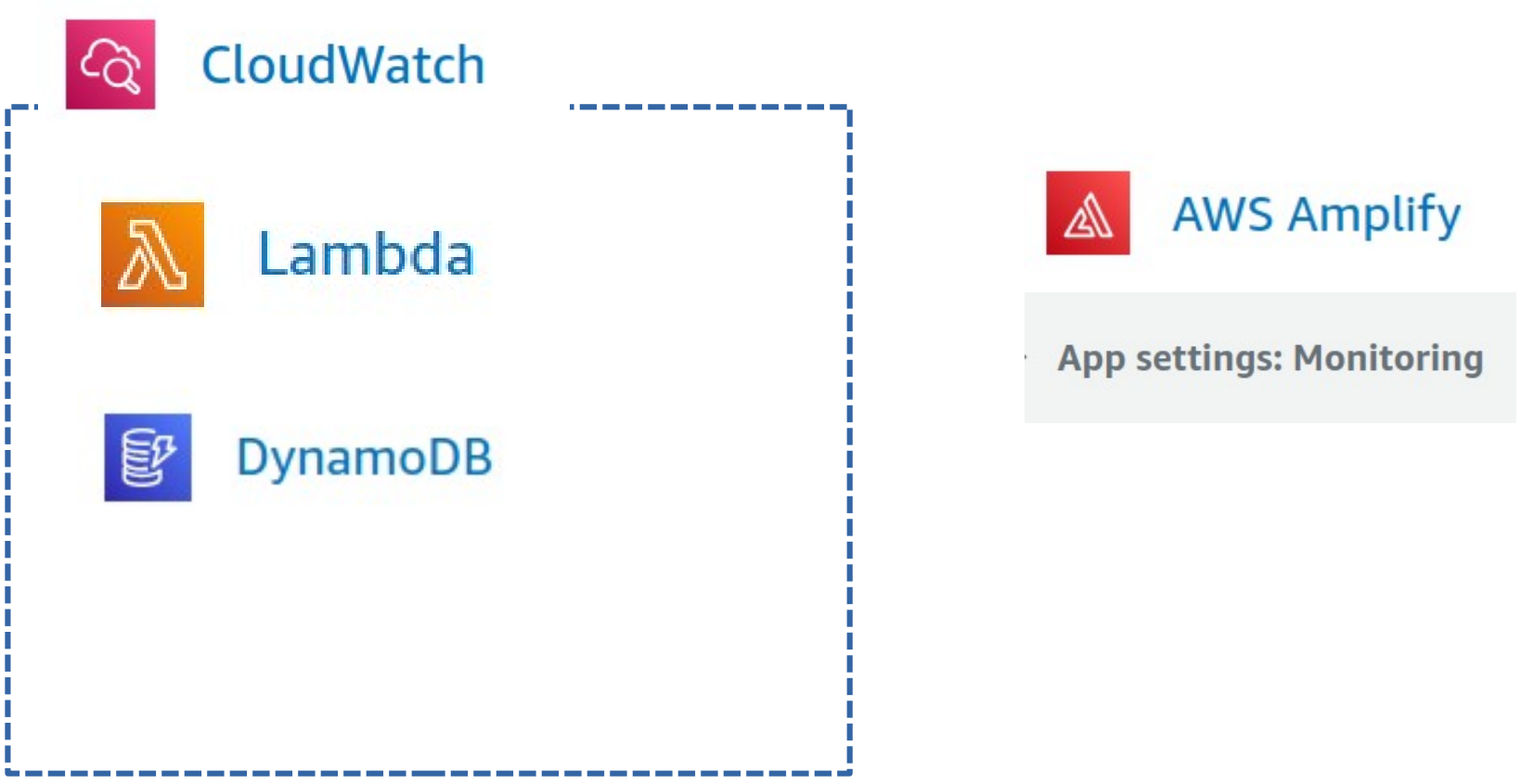
APACHE JMeter™

Ultimate Thread Group



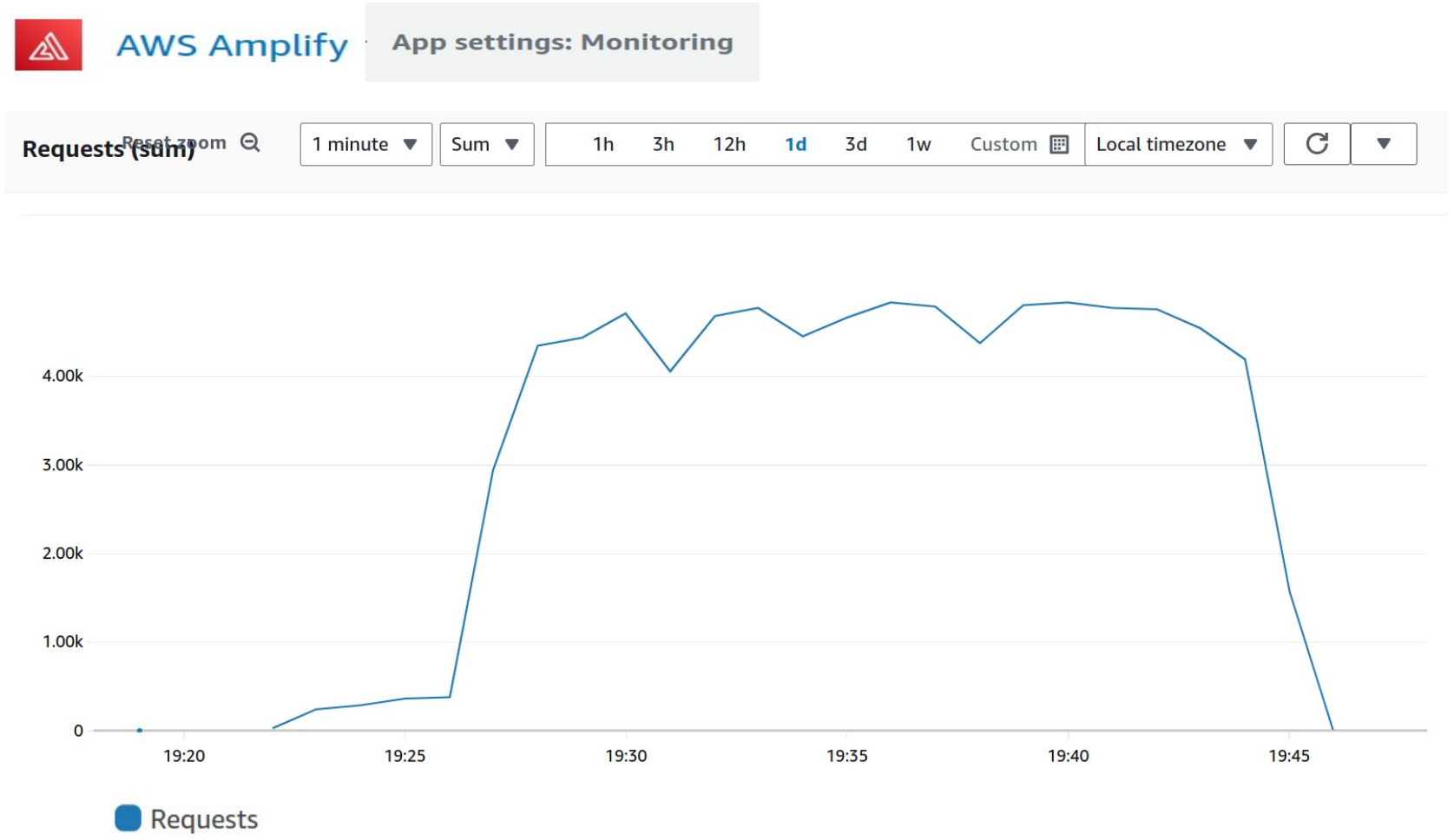
WU	RU	S	RD

Monitoring the Autoscaling Test



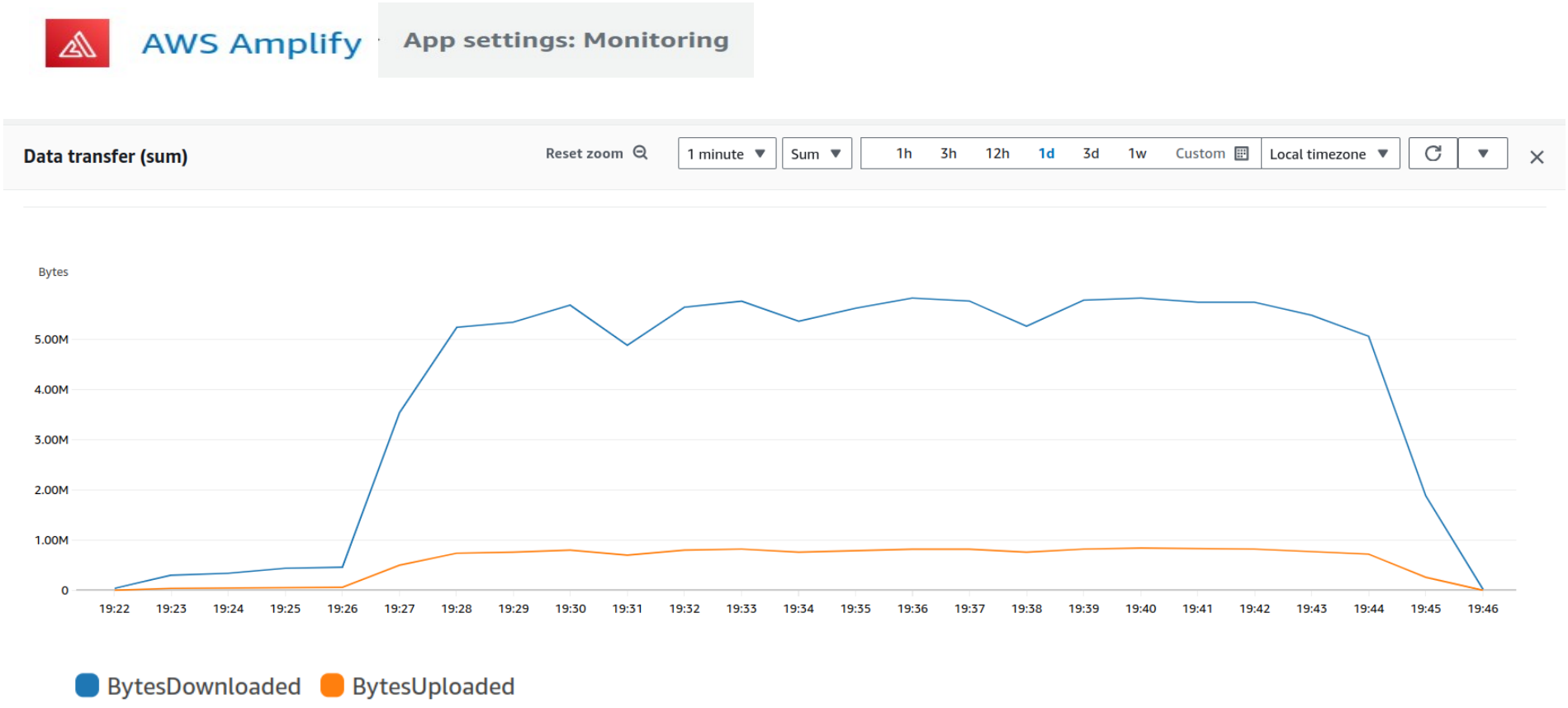
Monitoring the Autoscaling Test :

Requests



Monitoring the Autoscaling Test :

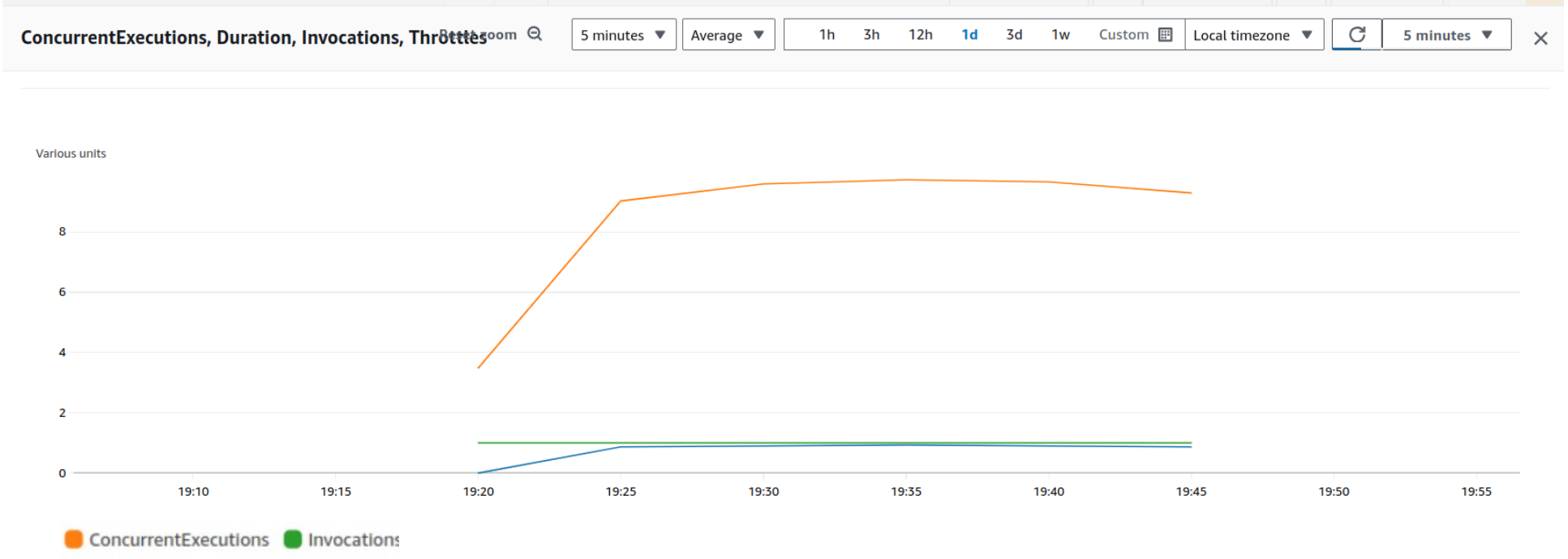
Bytes Uploaded/Dowloded



Monitoring the Autoscaling Test:

ConcurrentExecution

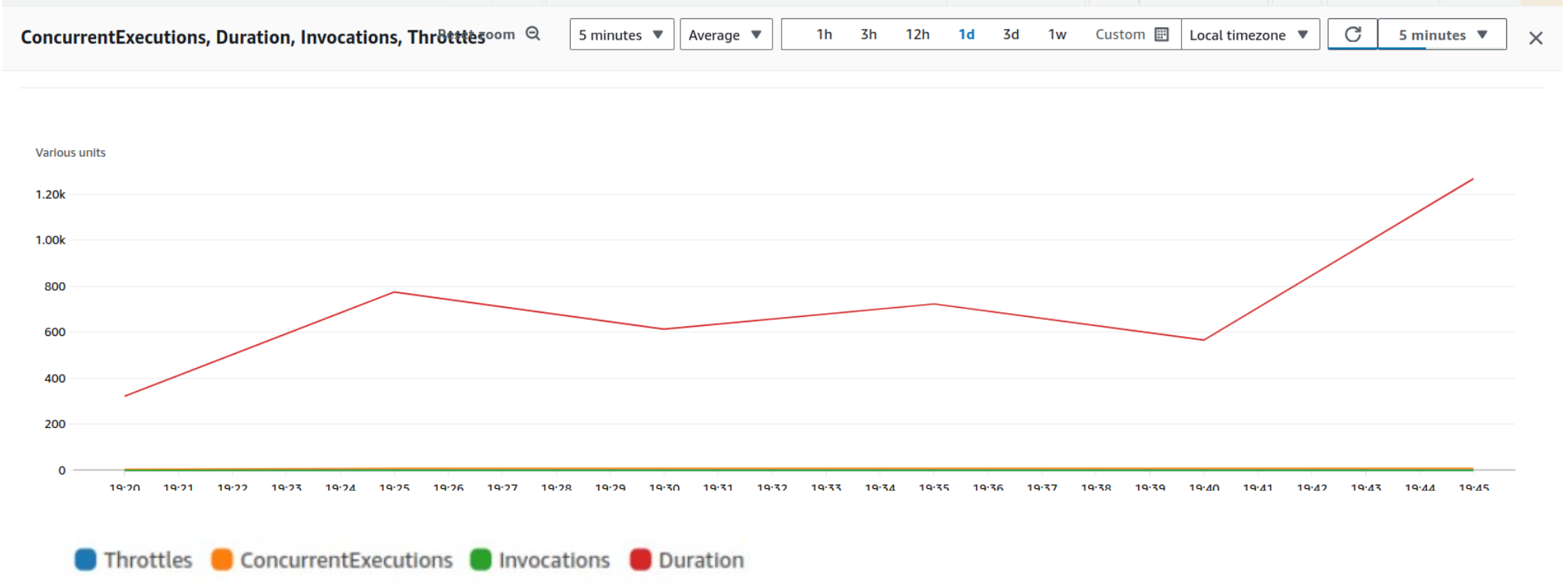
CloudWatch Lambda



Monitoring the Autoscaling Test:

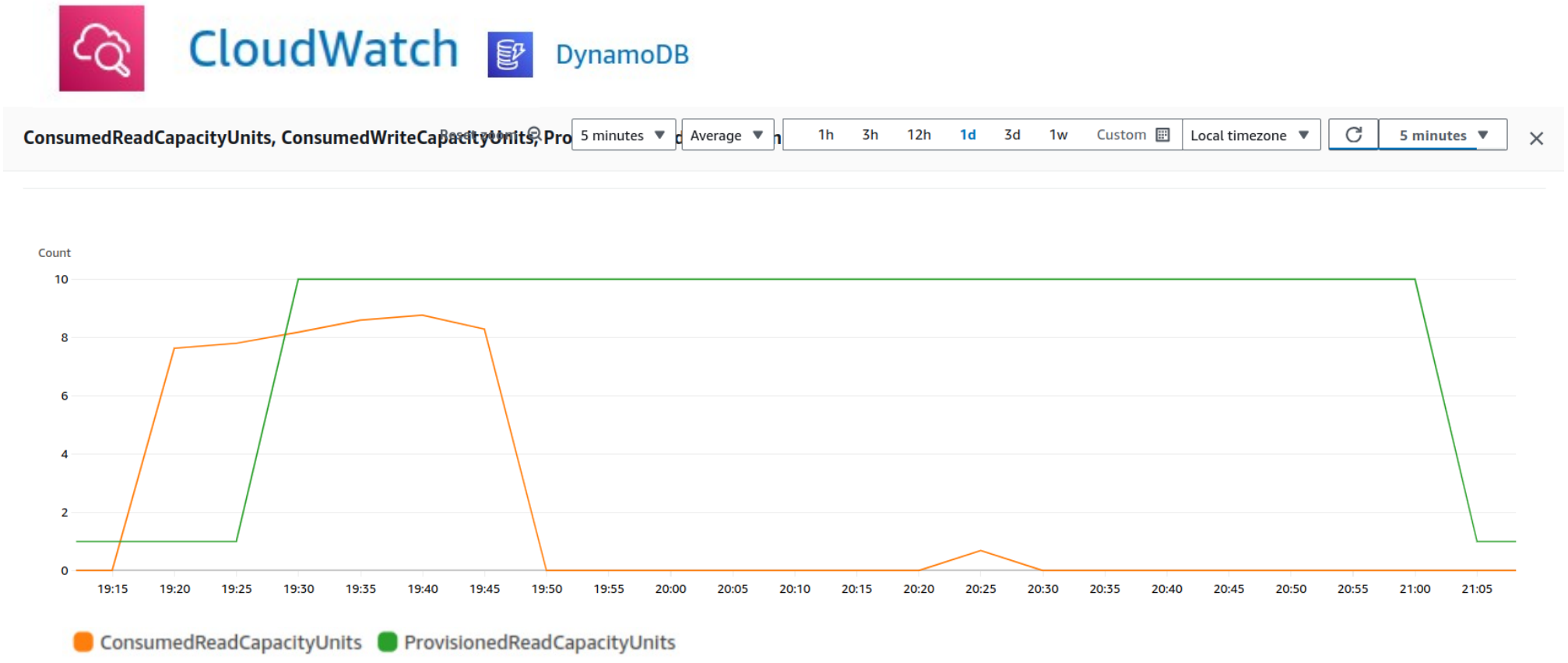
Duration

CloudWatch Lambda



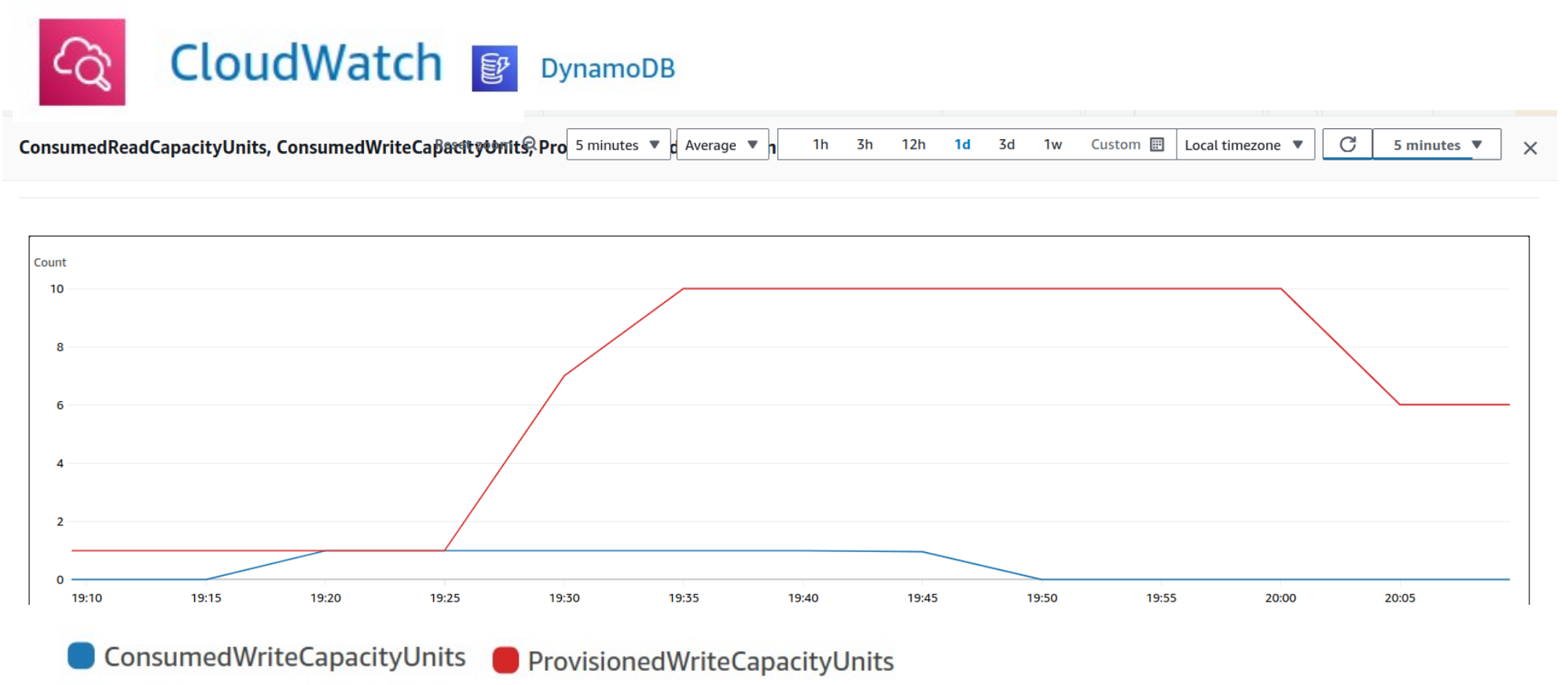
Monitoring the Autoscaling Test:

Read Capacity



Monitoring the Autoscaling Test:

Write Capacity



Thank You for Your Attention

Improving Handwritten Digit Recognition Using CNN with SE Blocks

I welcome any questions you may have

Seyed Mohammad Hosseinn Tabatabaei Ashkezari

seta23@student.bth.se