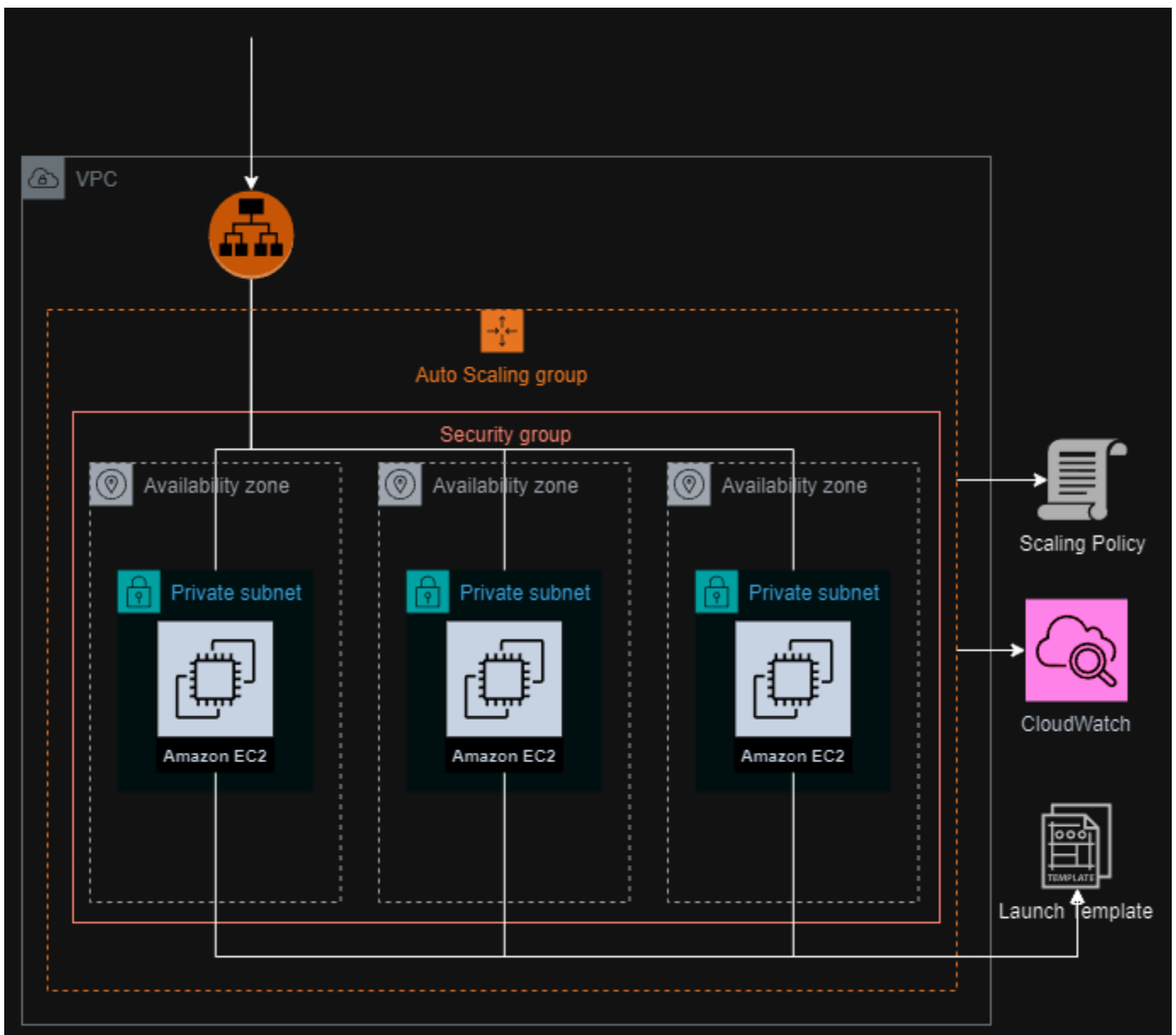
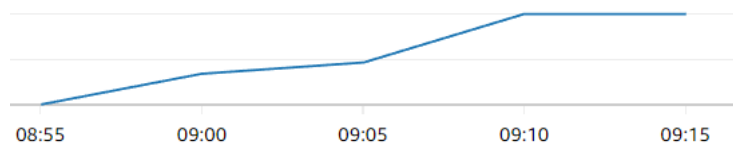


Large Scale Computing – lab 4

1. Results of the data transfer throughput measurements to and from S3.
 - a. From local computer – upload 7 MB/s, download 5.5 MB/s
 - b. From EC2 instance – upload 70 MB/s, download 60 MB/s
 - c. Sending ZIP from local computer to EC2 instance – 5.8 MB/s
2. Architecture description:
 - a. Auto Scaling Group: Manages EC2 instances, scaling in and out based on demand.
 - b. Scaling Policy: Defines conditions under which scaling occurs in response to CW alarms.
 - c. Load Balancer: Distributes traffic across EC2 instances for high availability.
 - d. Security Groups: Firewall rules that control inbound and outbound traffic for instances.
 - e. Launch Template: Specifies instance config like AMI, instance type, and security settings.
 - f. EC2 Instances: Virtual machines that serve application traffic.
 - g. CloudWatch: Monitors metrics and triggers scaling actions as per thresholds.



3. Cloud chart of Auto Scalling Group number of active instances:



Log of load generator:

Benchmarking lab4-lsc-balanceer-1190891959.us-east-1.elb.amazonaws.com (be patient)

Completed 1000 requests

Completed 2000 requests

Completed 3000 requests

Completed 4000 requests

Completed 5000 requests

Completed 6000 requests

Completed 7000 requests

Completed 8000 requests

Completed 9000 requests

Completed 10000 requests

Finished 10000 requests

Server Software: Apache/2.4.62

Server Hostname: lab4-lsc-balanceer-1190891959.us-east-1.elb.amazonaws.com

Server Port: 80

Document Path: /phpinfo.php

Document Length: 76667 bytes

Concurrency Level: 10

Time taken for tests: 1107.455 seconds

Complete requests: 10000

Failed requests: 8987 (Connect: 0, Receive: 0, Length: 8987, Exceptions: 0)

Total transferred: 768218856 bytes

HTML transferred: 766688856 bytes

Requests per second: 9.03 [#/sec] (mean)

Time per request: 1107.455 [ms] (mean)

Time per request: 110.745 [ms] (mean, across all concurrent requests)

Transfer rate: 677.42 [Kbytes/sec] received

Connection Times (ms) min mean[+/-sd] median max

Connect: 119 145 462.7 126 15857

Processing: 427 962 1276.6 770 30213

Waiting: 177 399 625.1 247 28842

Total: 547 1107 1361.7 899 30657