



CS 6650

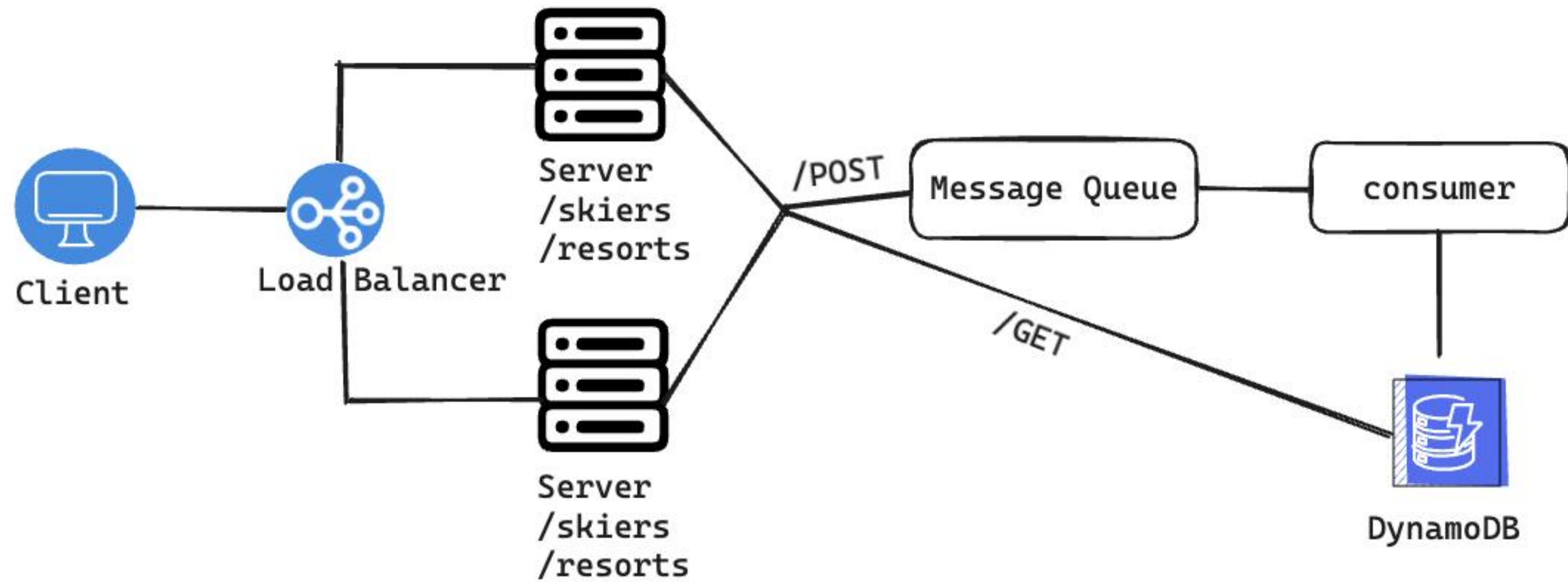
Final Project Presentation

BugFreeGroup



Lingyu Hu, Zewen Li, Zhizhou Gu, Chunyun Zhang

Project Architecture





Data Model

/POST

partitionKey: resortSeasonDayLiftId

sortKey: SkierId

Attributes:

- vertical
- time

update Attributes:

- UniqueSkiers
- TotalVertical
- DayVertical
- Vertical



Data Model

/GET

- 1. Get the total vertical for the skier for the specified ski day**
 - partitionkey: resortSeasonDay ("1#2024#1")
 - sortKey: skierId
 - select attribute: "DayVertical"
- 2. Get number of unique skiers at resort/season/day**
 - partitionKey: resortSeasonDay ("1#2024#1" / "1#2024#2" / "1#2024#3")
 - sorKey: -1
 - select attribute "UniqueSkiers"
- 3. Get the total vertical for the skier for specified seasons at the specified resort**
 - partitionKey: resortSeason ("1#2024")
 - sortKey: skierId
 - select attribute "TotalVertical"



JMeter Test Result

GET APIs Load Test

Thread Group

View Results Tree

1. Get unique skiers

2. Get skier day vertical

3. Get Total Vertical

Summary Report

Aggregate Report

Aggregate Report

Name: Aggregate Report

Comments:

Write results to file / Read from file

Filename

Browse...

Log/Display Only: ☐ Errors ☐ Successes

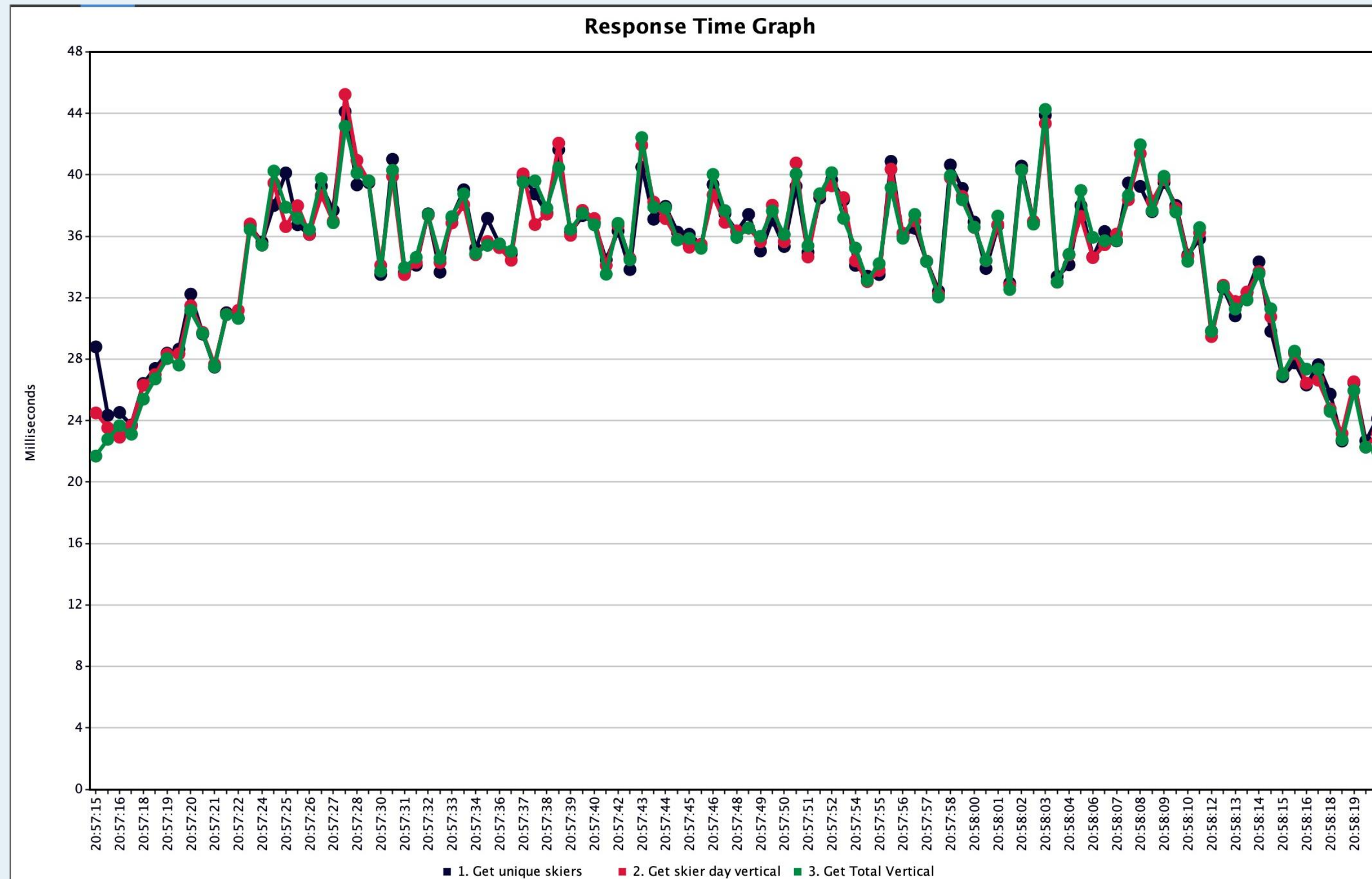
Configure

Label	# Samples	Average	Median	90% Line	95% Line	99% Line	Min	Maximum	Error %	Throughput	Received KB/s...	Sent KB/sec
1. Get uniq...	64000	34	32	48	55	73	14	310	0.00%	1001.7/sec	146.12	159.45
2. Get skier...	64000	34	31	48	55	74	14	483	0.00%	1002.2/sec	140.02	165.29
3. Get Total...	64000	34	32	48	55	74	14	300	0.00%	1002.2/sec	140.89	166.27
TOTAL	192000	34	31	48	55	74	14	483	0.00%	3003.1/sec	426.62	490.52

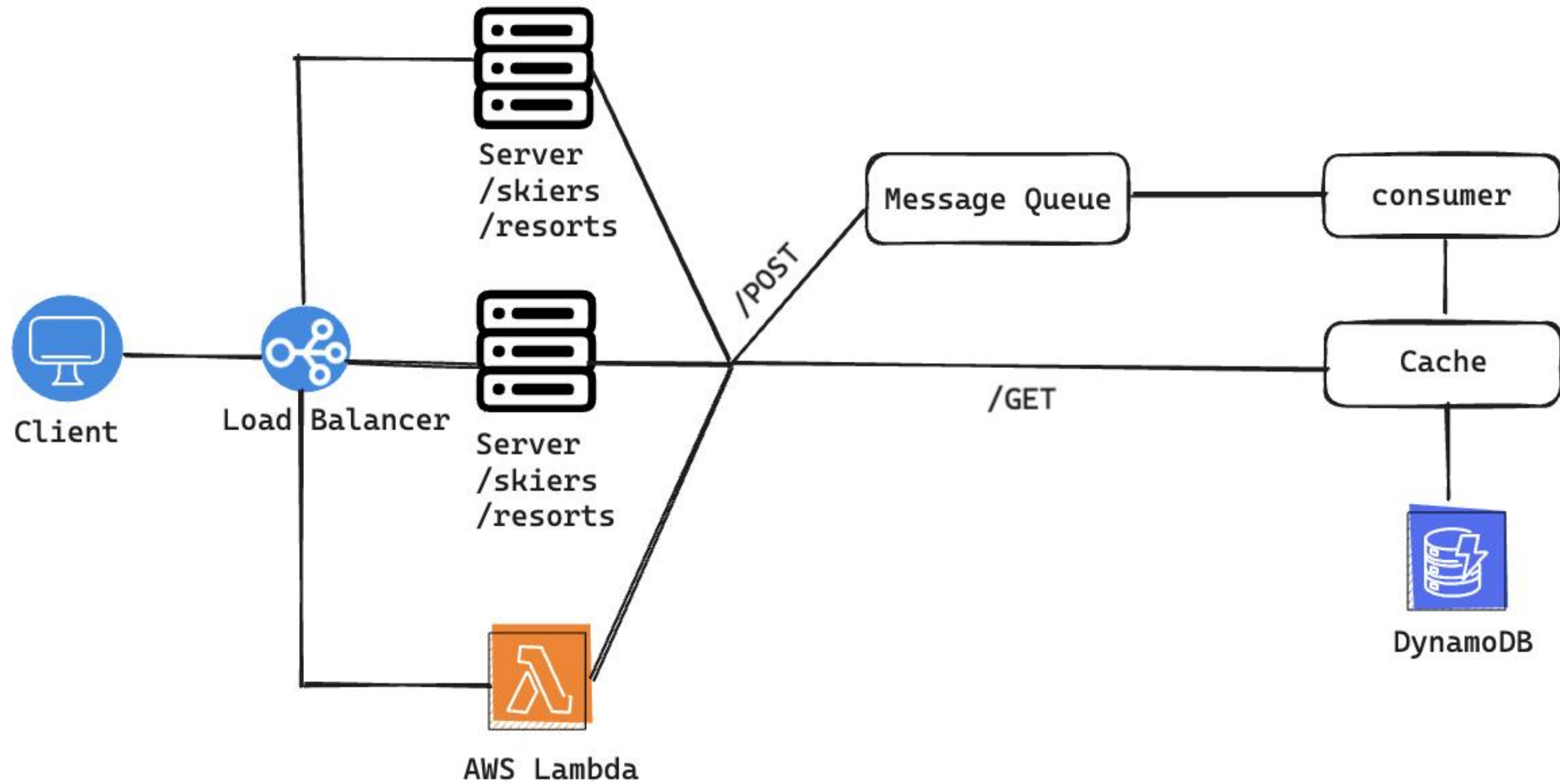
00:01:03 0 0/128



JMeter Test Result



Possible Optimization



Possible Optimization



Implementing **Cache** to store frequently accessed data



Add **read replicas** to distribute the load of read queries across multiple database instances.



Combine multiple requests into a single larger **batch** to reduce the overhead of query processing.



Implement **AWS Lambda** to manage the surge in client requests effectively.





THANK YOU !