

CS654A Software Architecture

Assignment 6

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Load Balancing using Cloud Platform

Deployment

Two app servers (call it A & B) returning n^{th} Fibonacci number, computed recursively, were deployed on Heroku Cloud. Third server (call it C) serves as the load balancer was also deployed on Heroku Cloud.

A : <https://still-badlands-66687.herokuapp.com/fib/35>

B : <https://tranquil-earth-29722.herokuapp.com/fib/15>

C : <https://sleepy-tor-37576.herokuapp.com/fib/40>

Also, for curiosity purpose, I also deployed all three servers locally and results are noted below

Technology Stack : NodeJS on Heroku Cloud for both application servers and load balancer

Load Balancing Strategy : Since both the app servers have same capability, and are identical in every respect, any fair strategy like uniform random or round robin will balance the load efficiently. I have used round robin strategy. Monitoring the load will not improve any performance in this case.

Commands to deploy are the same as on Heroku getting started guide

<https://devcenter.heroku.com/articles/getting-started-with-nodejs>

Jmeter Testing

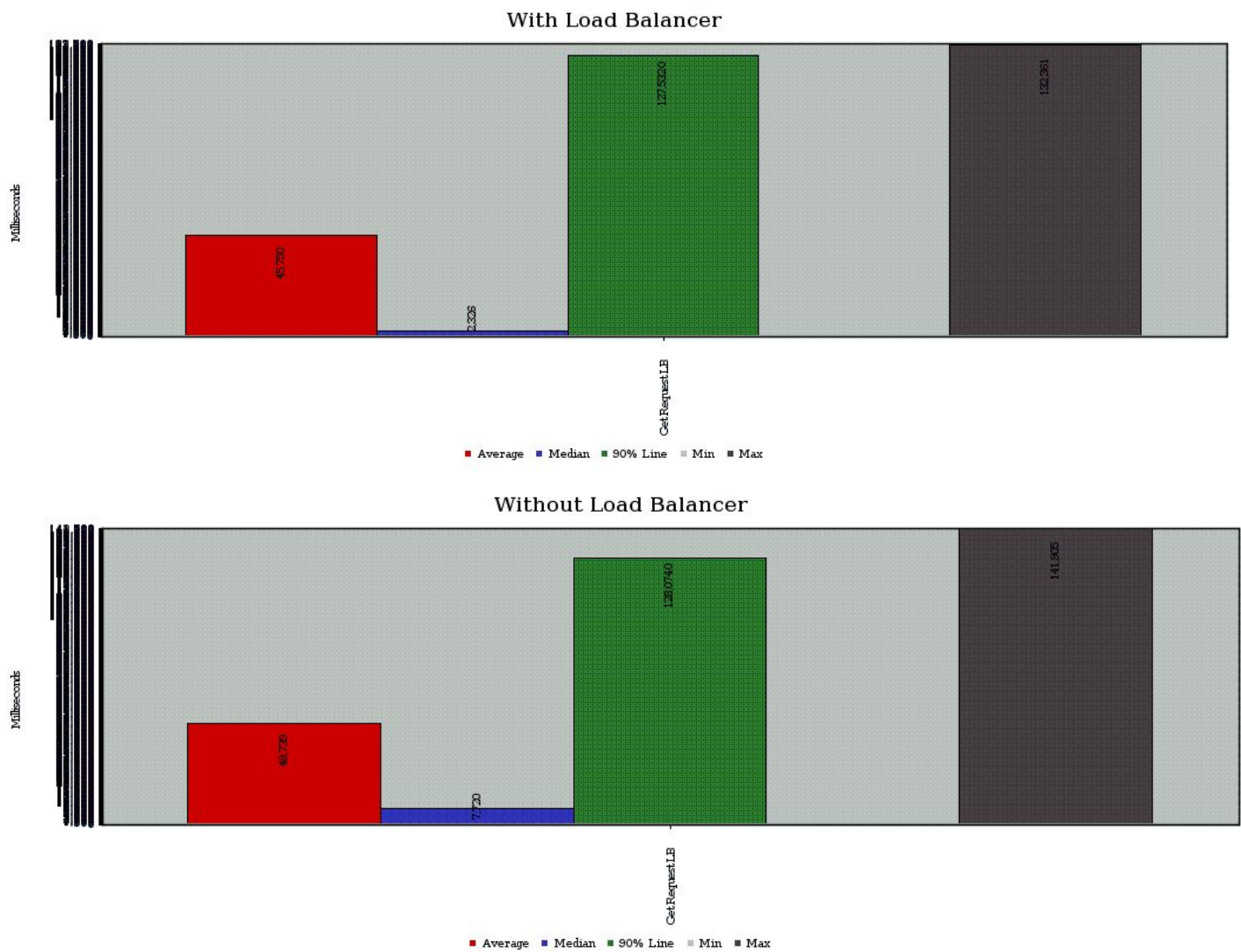
As instructed, I have used Jmeter to run tests and following results were obtained.

Setting up tests:

Number of threads : 10000

URL to call : <https://sleepy-tor-37576.herokuapp.com/fib/35> (With load balancing)

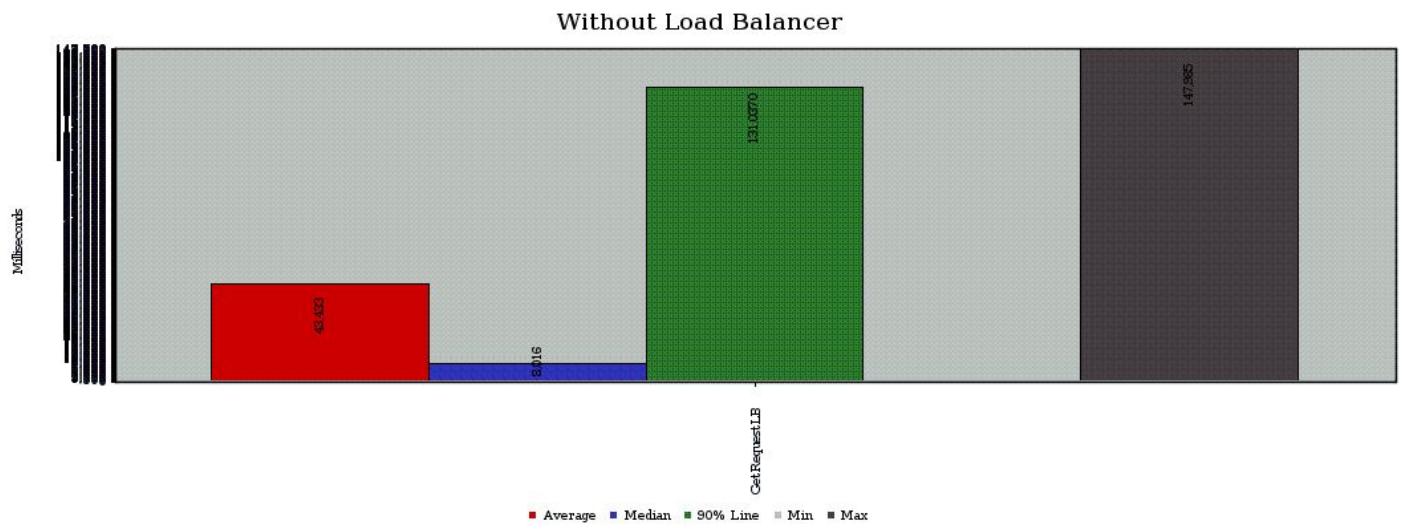
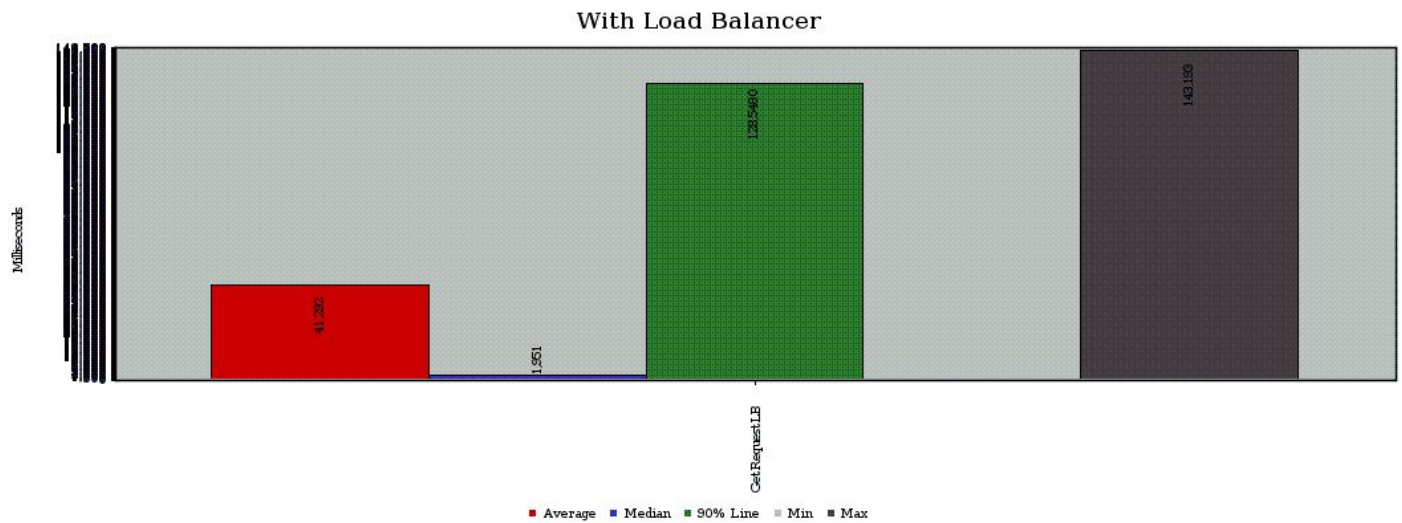
<https://still-badlands-66687.herokuapp.com/fib/35> (Without load balancing)



Number of threads : 10000

URL to call : <https://sleepy-tor-37576.herokuapp.com/fib/15> (With load balancing)

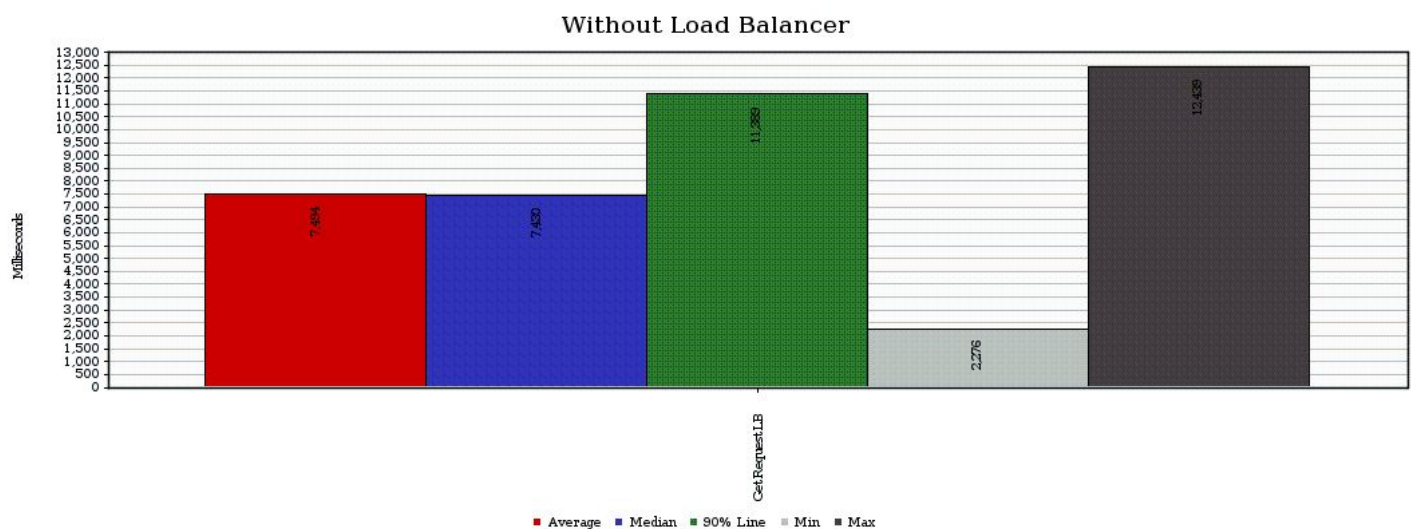
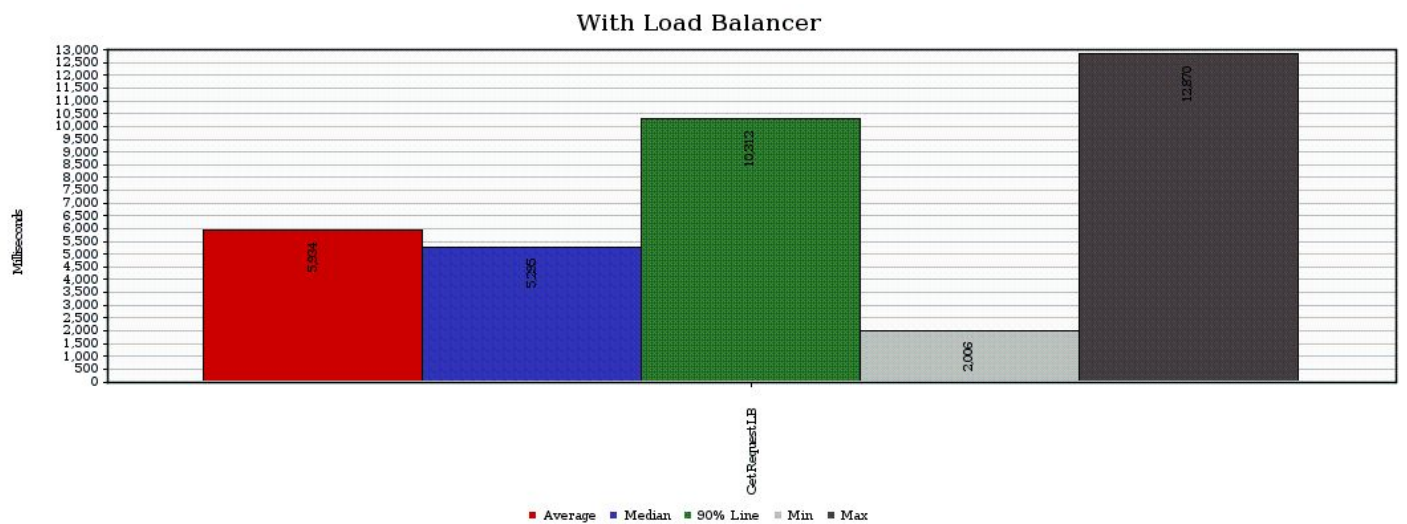
<https://still-badlands-66687.herokuapp.com/fib/15> (Without load balancing)



Number of threads : 100

URL to call : <https://sleepy-tor-37576.herokuapp.com/fib/35> (With load balancing)

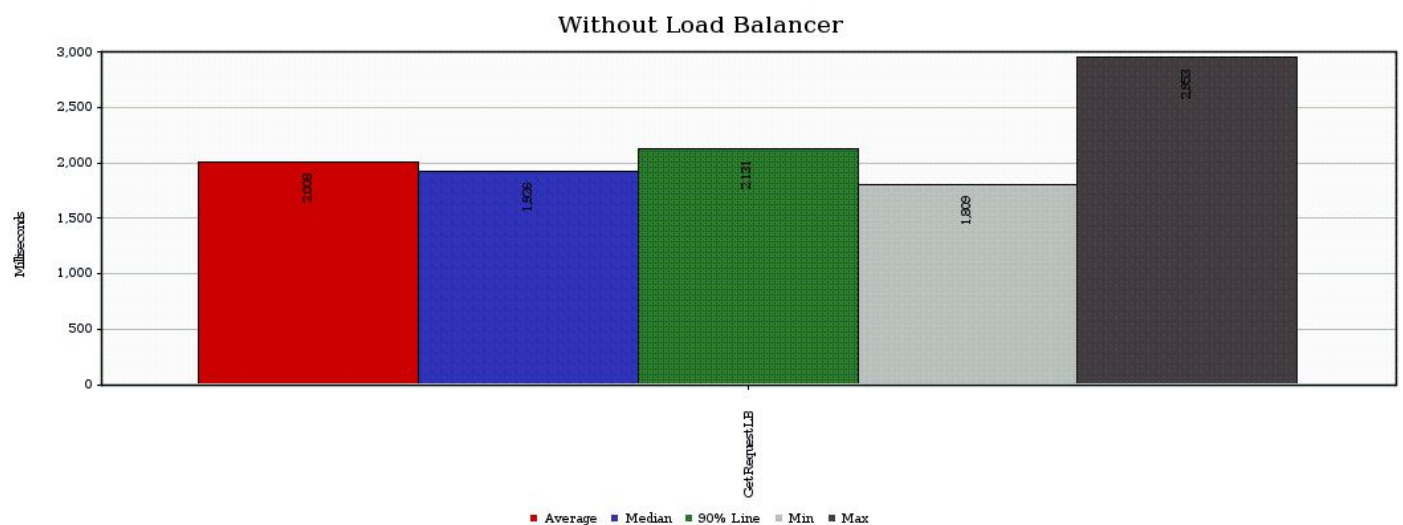
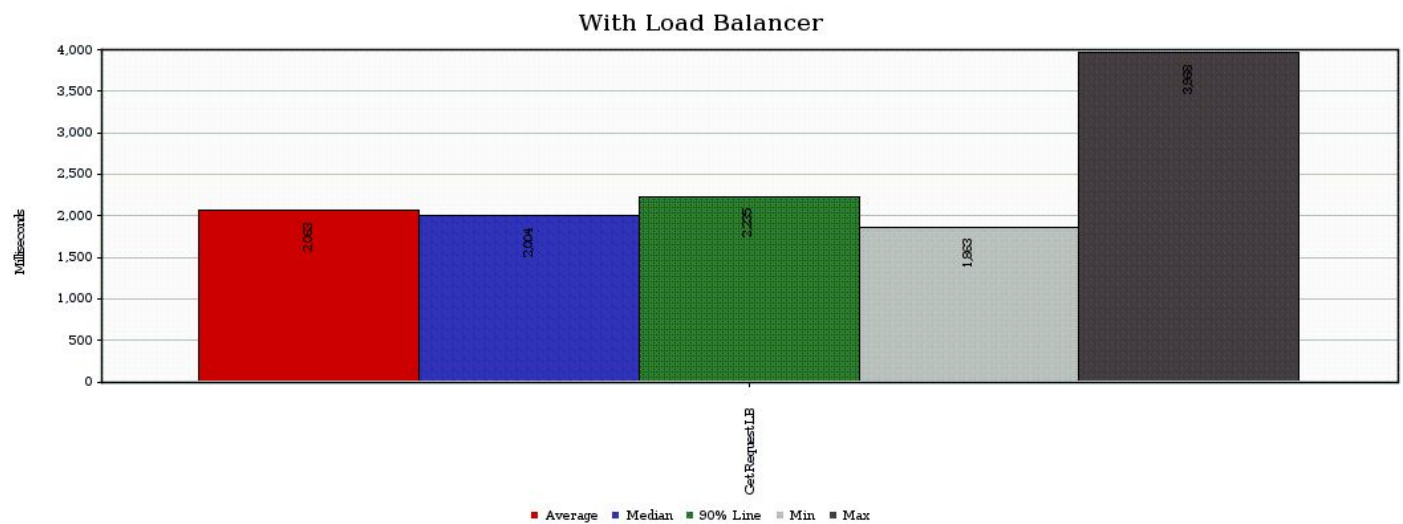
<https://still-badlands-66687.herokuapp.com/fib/35> (Without load balancing)



Number of threads : 100

URL to call : <https://sleepy-tor-37576.herokuapp.com/fib/15> (With load balancing)

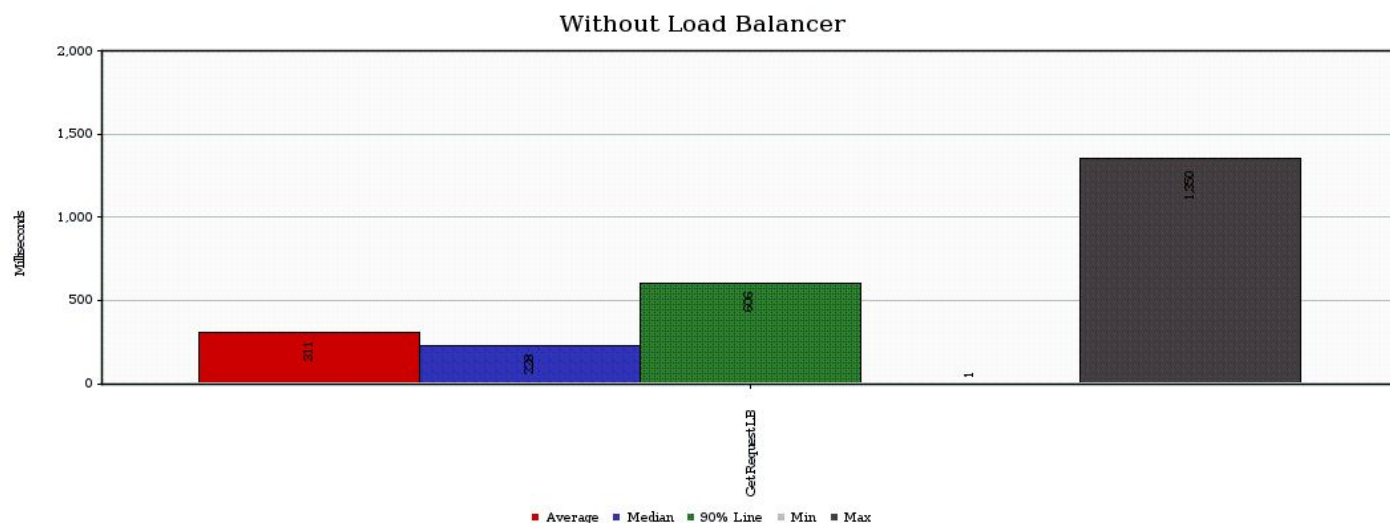
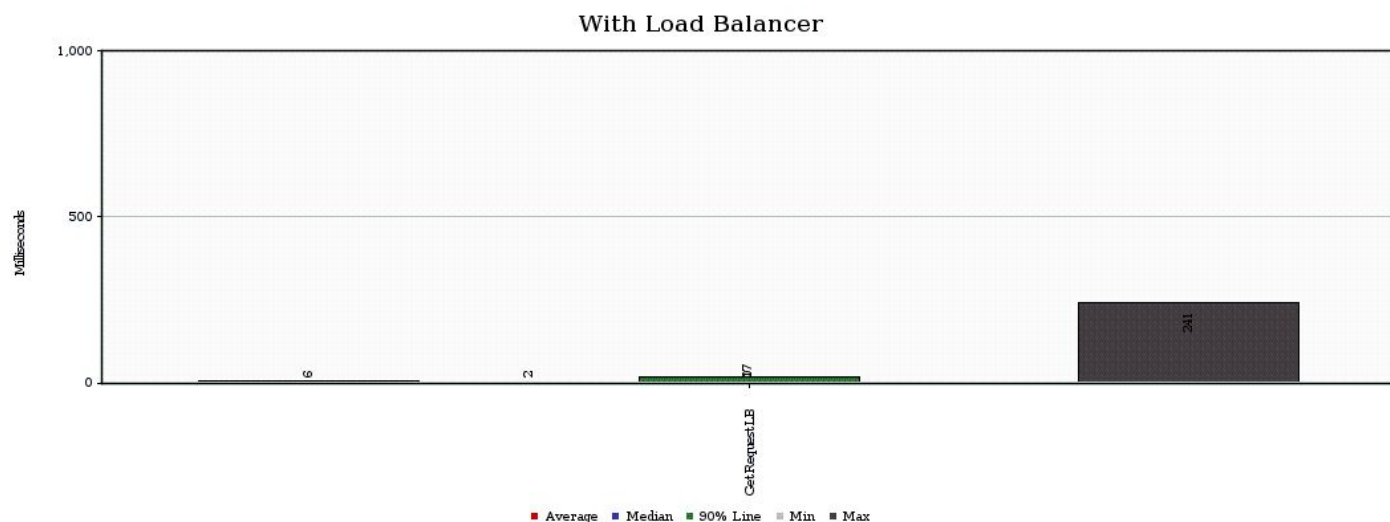
<https://still-badlands-66687.herokuapp.com/fib/15> (Without load balancing)



Number of threads : 10000

URL to call : <https://localhost:5000/fib/15> (With load balancing)

<https://localhost:5001/fib/15> (Without load balancing)



Number of threads : 100

URL to call : <https://localhost:5000/fib/35> (With load balancing)

<https://localhost:5001/fib/15> (Without load balancing)

