

EDI: First Lab Report

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Abstract

Assignment 1: The goal of this work was to determine the average daily peak time of a server, using an active monitoring technique (traceroute).

1 Monitoring of a Server's Peak Time

1.1 Methodology and experimental setup

Peak time was assumed to occur at around the early hours of the evening, more precisely: in the time interval from 6 PM to 11 PM. [1]

1.1.1 Hypotheses that were formulated

When a server is experiencing too many requests, the following things are expected to happen:

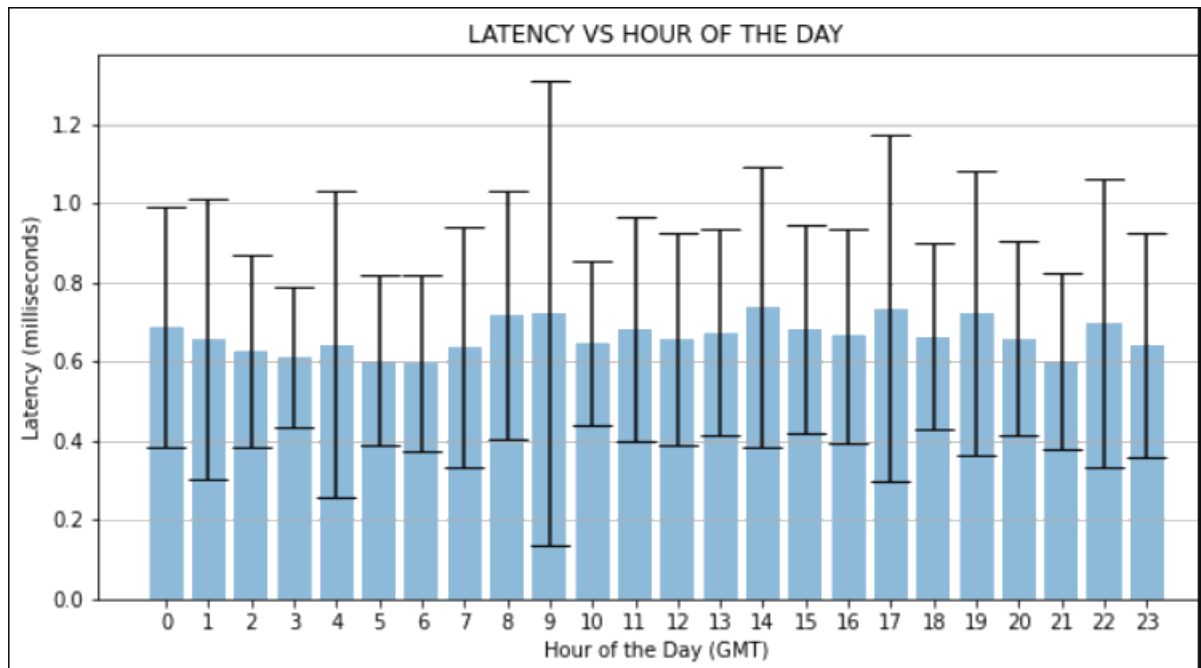
- H1) Latency Surges: Because the server has to deal with a higher amount of packets per unit time, queueing is expected to happen, and the round trip time of packets sent to the server is expected to increase.
- H2) Number of hops increases: At peak time, congestion may take place on the normally optimal routes, and thus alternative routes, which may include more hops, will be sought by the packets, increasing the average number of hops to reach the server.
- H3) Number of dropped packages increases: Using UDP, there is no guarantee that the packets will reach the server, and if the network is congested and the server is busy, the drop rate is expected to increase.

1.1.2 Experimental Setup

A script that performs traceroute on a target IP at regular intervals (every 5 minutes) was executed on a vantage point for a whole week. Then the collected data was processed offline. The vantage point in question was a virtual machine on GCP (Google Cloud Platform). The target website was: www.google.it.

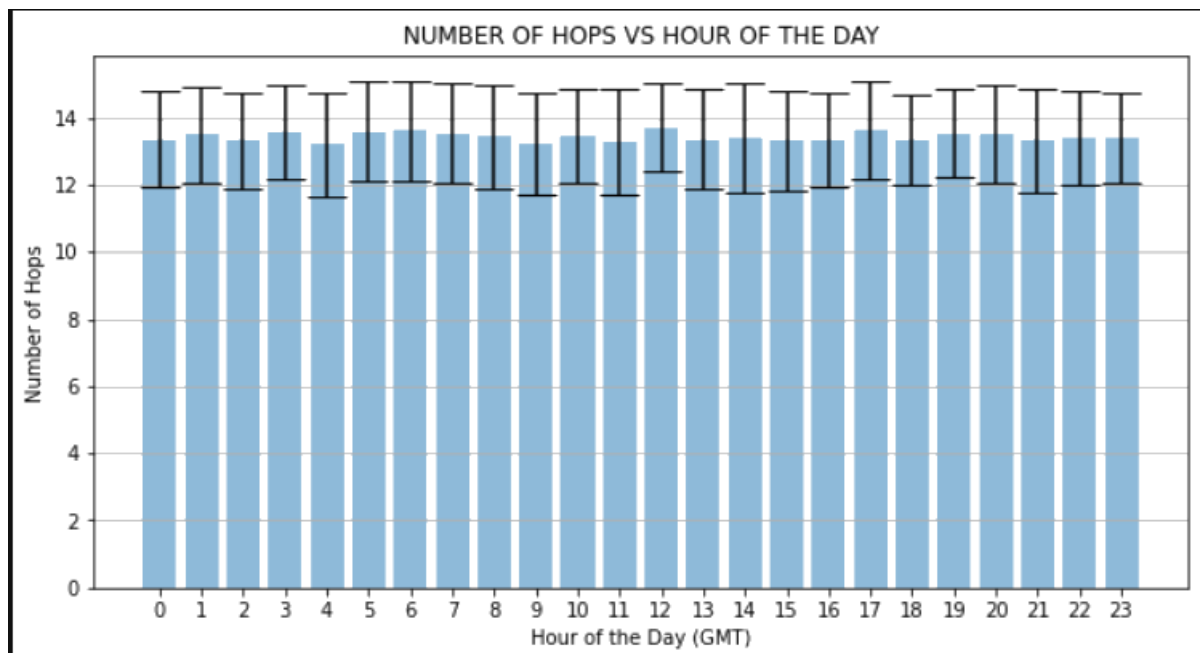
1.2 Experimental results

1. H1) As the following bar-chart shows, latency is minimum during the late hours of the night and early hours of the morning (1AM - 7 AM). It's higher during the early hours of the evening and during the late afternoon.



You can also notice a spike at 8 and 9 AM.

2. H2)



3. H3) Was found to be completely false, as the number of dropped packages stayed at a constant 0 all the time. This is most likely due to the fact that the Vantage Point and the Target servers were both owned by Google.

2 Insert the title of your second lab

2.1 Methodology and experimental setup

2.2 Experimental results

3 Conclusion

4 References

1. <https://www.highspeedinternet.com/resources/why-does-my-internet-slow-down-at-night>