

An Analysis and Comparison of Two Decentralized Peer-to-Peer Networks: Freenet vs. Zeronet

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1 Goals and Significance

For my CSC466 project, I am proposing to do an analysis and comparison of two decentralized, peer-to-peer networks, Freenet and Zeronet.

1.1 What is the Problem?

The problem being faced for these smaller, less well-known networks is their lack of information from other sources. Most information written on such topics are mainly from the creators and even rarer are any comparisons between different networks. We address this problem by first giving analyzing these two networks and then comparing them.

1.2 Why is it Important?

With the ever present news and headlines of Internet censorship and surveillance, privacy is becoming an increasingly important part of even regular user's experience. As people migrate to different platforms, it may serve well for an analysis on some of these platforms features, benefits and drawbacks to occur.

2 Previous Work

Previous work on the two topics are sparse at best with comparison between the two being non-existent. Inputting "Zeronet" into IEEE Xplore returns zero results while "Freenet" garners 68 results. Google Scholar gives marginally better results but many results only mention these networks in passing while describing some other idea.

In terms of analysis though, some analysis has been done for the older of the two networks: Freenet. Clarke et al. described freenet's workings in depth in

their paper "Freenet: A Distributed Anonymous Information Storage and Retrieval System." [1] Their work provides a good starting point into understanding the network.

3 Project Plan

3.1 How will the project be approached?

First, extensive research on the two networks will be done to give an idea of what the purpose, abilities and benefits of each network are.

Next, I would compare the networks by their features and present my discoveries.

Lastly, if possible, I hope to create and host two identical websites on each of the networks so that I can gain a greater understanding of the two networks. This would allow a greater qualitative understanding of the process of joining the network as well as open up the future possibility of a qualitative comparison between the networks.

3.2 Why can it do better?

By focusing on comparing the two networks, the project branches out into an area that has not been discussed much if at all. So, we are doing better by, ostensibly, being the first to perform such a comparison.

3.3 Expected Deliverables

Expected project deliverables include:

- a public website hosting work done and logged
- two websites created for each network
- a final report covering the topics discussed in the proposal

3.4 Schedule

Fortnight	Deliverable
1 (Jan 25 - Feb 8)	Project Proposal and Work Log Website
2 (Feb 8 - Feb 22)	Initial Research and Website Creation
3 (Feb 22 - Mar 8)	Midterm Presentation
4 (Mar 8 - Mar 22)	Research Finished; Report Underway)
5 (Mar 22 - Apr 5)	Final Presentation
6 (Apr 5 - Apr 19)	Final Report

3.5 Website URL

A website for the work done is/will be hosted at: <https://csc446decentralized.wordpress.com/>

4 References

- [1] I. Clarke, O. Sandberg, B. Wiley, and T. W. Hong, “Freenet: A distributed anonymous information storage and retrieval system,” H. Federrath, Ed., pp. 46–66, 2001. DOI: 10.1007/3-540-44702-4_4. [Online]. Available: https://doi.org/10.1007/3-540-44702-4_4.