Chair of Network Architectures and Services
Department of Informatics
Technical University of Munich

Thesis B.Sc.

Analysis of IPv6 Hitlist sources

Motivation

The ability to scan through the Internet is crucial for our understanding of its structure and developments. Contrary to IPv4, the IPv6 address space is impossible to scan exhaustively, which is why we have *IPv6 Hitlist*, i.e. lists of active addresses. One such Hitlist is maintained by this chair since 2018 [1]. Addresses come from a variety of different sources, such as DNS resolutions, traceroutes, Target Generation Algorithms [2] and external data sources. While the the composition of the Hitlist has been studied [2,3,4], it is still unclear to what extent which source contributes to the Hitlist. This thesis aims to analyze the properties of the addresses contributed by the different sources. This includes the response rate, responses over time and protocol responses.

Your Task

- Familiarize yourself with our Hitlist and the involved scanning processes
- Develop methods for analyzing the origin of addresses and their properties
- Analyze the historic development of different sources
- Correlate the origin and the properties and visualize your results
- Optionally visualize your results for the IPv6 Hitlist website

References

[1] https://ipv6hitlist.github.io
[2] Target Acquired? Evaluating Target Generation Algorithms for IPv6 - *Steger et al. 2023*
[3] Rusty Clusters? Dusting an IPv6 Research Foundation - *Zirngibl et al. 2022*
[4] Clusters in the Expanse: Understanding and Unbiasing IPv6 Hitlists - *Gasser et al. 2018*

Requirements

Basic knowledge about IPv6 and different Internet Protocols, knowledge or motivation for efficient data analysis.

Contact

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