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

Thesis B.Sc.

Thesis M.Sc.

Optimization of IPv6 Aliased Prefix Detection

Motivation

The ability to scan the Internet is crucial for our understanding of its structure and developments. For IPv6, scans are often influenced by so called **Aliased Prefixes**, network prefixes for which one host or a small number of hosts responds to all addresses within the prefix. This introduces an extremely large number (e.g. 2^{64}) of active addresses to scan results, while only a small number of hosts is actually active. Modern IPv6 measurement studies [1] employ **Aliased Prefix Detection** (APD) to correct this bias. The methods employed for our chair's studies [2] are however very resource-intensive, causing long scan times and large amounts of data. This thesis aims to apply methods from related work [3 and others] or develop new methods to improve our APD mechanisms.

Your Task

- Familiarize yourself with our IPv6 measurements and APD mechanism
- Research related work and the different proposed methods
- Evaluate our current data and difference to other methods
- Implement and evaluate optimizations for our APD methods

References

[1] Gasser et al., 2018
[2] https://ipv6hitlist.github.io/
[3] Song et al, 2022

Requirements

Basic understanding of IPv6 and familiarity with bash + Linux.

Contact

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