



Thesis
B.Sc.

Thesis
M.Sc.

IDP

Finding Active IPv6 Adresses

Motivation

While scanning the entire IPv4 Internet has become feasible in few minutes with tools such as ZMap or masscan, the size of the IPv6 addresses space requires smart address selection strategies. This work aims to revisit prior work done at our chair and extend it by exciting new IPv6 address sources. One such source is the mass traversal of the IPv6 reverse DNS space. This work should aim to build a service that will continuously and actively procure active IPv6 addresses from the sources evaluated. This work is part of our BMBF-funded research project X-Check, providing students integration into a larger scientific context.



Research Questions

Research Questions to be covered are:

- How and where to source active IPv6 addresses?
- How well is coverage (AS, Prefix, Geography) of these IP addresses?
- How responsive are these addresses over time?
- How well do the discovered sources compare to each other over time?

Tools/Methods

- Analysis and Coding: Python, Jupyter Notebook
- Active Internet Measurements: ZMap
- DNS Lookups: To be evaluated

[1] Gasser *et al.*: Scanning the IPv6 Internet: Towards a Comprehensive Hitlist, *TMA'16*

[2] Foremski *et al.*, Entropy/IP: Uncovering Structure in IPv6 Addresses, *IMC'16*

[3] Fiebig *et al.*, Something From Nothing (There): Collecting Global IPv6 Datasets From DNS, *Passive and Active Network Measurement, 2017*

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