Thesis B.Sc.

IDP

Design and Implementation of a TGA Evaluation Platform

Motivation

The ability to scan the Internet is crucial for our understanding of its structure and developments. For IPv6, so called **Target Generation Algorithms** (TGAs) exist, which generate targets for Internet measurements. There is a multitude of TGAs in related work, which is why we set out to create a platform to compare and evaluate them. We already evaluated some of them in our 2023 paper [1], another paper evaluated different a different set [2], however, many new ones were created since then. The process of setting up and testing unknown code while adhering to ethical guidelines (such as low data rates and opt-out mechanisms) for Internet measurements is error-prone and requires a lot of manual work. Your task is the design and Implementation of a platform which enables multiple users (potentially other students) to test or implement TGAs under realistic conditions. The platform should automatically ensure the adherence to ethical scanning guidelines and provide a interface to run different TGAs with the same parameters (inputs, budgets).

Your Task

- Familiarize yourself with the concept of TGAs and our current setup
- Research fitting tools (bandwidth limiting, network emulation)
- Improve or reimplement our current process of setting up and running TGAs automatically
- Test and evaluate your solution (simulation rates, ease of use)

References

[1] Steger et al., 2023
[2] Williams et al., 2024

Requirements

Basic understanding of IPv6 and familiarity with bash + Linux.

Contact

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