I am pleased to report that our IMC submission was accepted!

(https://conferences.sigcomm.org/imc/2018/)

(Preprint available at: https://arxiv.org/abs/1805.11308)

This is a large-scale IPv6 topology mapping effort, aimed at understanding the effect of target selection on infrastructure discovery.

Abstract: Existing methods for active topology discovery within the IPv6 Internet largely mirror those of IPv4. In light of the large and sparsely populated address space, in conjunction with aggressive ICMPv6 rate limiting by routers, this work develops a different approach to Internet-wide IPv6 topology mapping. We adopt randomized probing techniques in order to distribute probing load, minimize the effects of rate limiting, and probe at higher rates. Second, we extensively analyze the efficiency and efficacy of various IPv6 hitlists and target generation methods when used for topology discovery, and synthesize new target lists based on our empirical results to provide both breadth (coverage across networks) and depth (to find potential subnets). Employing our probing strategy, we discover more than 1.3M IPv6 router interfaces from a single vantage point -- an order of magnitude more than produced by current state-of-the-art mapping systems that use hundreds of vantages. Finally, we publicly share our prober implementation, synthesized target lists, and discovered IPv6 topology results.