

Title: “Internet Worm Propagation”
Student: Christoph Kanich
Advisor: Dr. S. Fahmy

The impetus for accurate simulation of malicious network activity is clear, as Internet-scale experimental testbeds are not available to faithfully recreate attack and defense scenarios. Furthermore, the installation of any Internet-wide worm or ddos defense system must be rigorously tested before any widespread roll out. Our project evaluates the validity and performance of the SSFNet simulator as well as models worm propagation under different network topologies and new worm defenses. Specifically, we model a single AS and vary topologies based on real-world observations in order to realistically evaluate the effect of core connectedness on worm propagation in power law networks. We have also built a worm defense mechanism into the SSFNet worm model, as well as metric collection for evaluation of the mechanism's effectiveness, and have tweaked several variables in the implementation of the defense in order to find an optimal configuration.