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

Thesis
M.Sc.

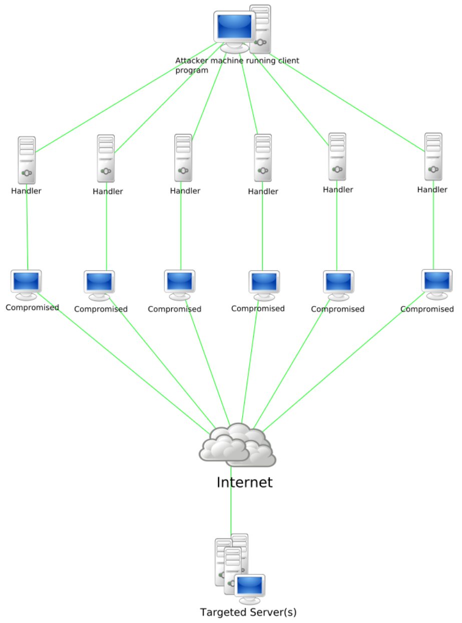
IDP, HiWi

Amplification Attack Detection using Active Measurements

Motivation

Amplification attacks are a special type of DDoS attacks, where the response packet is significantly larger than the request packet. Research has shown [a] [b] that amplification attacks in protocols are widespread.

In this thesis you will build a framework which is able to leverage active measurements to detect services which can be abused as amplifiers. The framework incorporates ZMap [c] and its IPv6 counterpart [d] to scan for abusable services on different UDP ports. You will implement the framework as an extensible architecture, so that future protocols can be added easily. Finally, the software will be evaluated by running periodic active measurements within a large university network. In addition, a notification module can alert affected parties.



[a] Rossow: *Amplification Hell: Revisiting Network Protocols for DDoS Abuse.* NDSS 2014.

[b] Gasser et al.: *The Amplification Threat Posed by Publicly Reachable BACnet Devices.* JCSM 2017.

[c] ZMap: https://github.com/zmap/zmap

[d] ZMapv6: https://github.com/tumi8/zmap

Requirements

- Interested, motivated, autonomous work ethic
- Experienced in programming and data analysis
- You live the GIYF motto

Contact

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