

Kyle Graham Schomp

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Research Interests

I am a computer scientist with a specialization in distributed systems, networking, and Internet measurement. My current focus is on anycast deployments with particular interest in mitigation of growing DDoS attacks against the Domain Name System (DNS) while maintaining 100% availability. Previously, I've focused on privacy and security issues in the DNS, transport protocols and congestion control in mobile networks, and transport layer security.

Education

Case Western Reserve University 2010 – 2016
Ph.D. in Computer Science Cleveland, OH

- Dissertation: *Complexity and Security of the Domain Name System*.
- Advisor: Michael Rabinovich

Case Western Reserve University 2008 – 2010
M.S. in Computer Science Cleveland, OH

- Thesis: *Dynamic TCP Proxies: Coping with Mobility and Disadvantaged Hosts in MANETs*.
- Advisor: Michael Rabinovich

Case Western Reserve University 2002 – 2006
B.S. in Computer Science Cleveland, OH

Appointments

Performance Engineer, Senior II July 2018 – Present
Performance Engineer, Senior February 2016 – July 2018
Akamai Technologies, Inc. Cambridge, MA

- Monitor and maintain Akamai's massively distributed DNS infrastructure that is critical to Akamai's core business
- Identify issues and design solutions supported by quantitative analysis to improve the performance, reliability, and safety of the system
- Pre-emptively discover scaling limitations and develop mitigations
- Re-assess existing systems to tune configuration and reduce complexity where not justified by evidence

Graduate Student Researcher June 2015 – September 2015
International Computer Science Institute Cleveland, OH

Research Assistant August 2010 – May 2015
Case Western Reserve University Cleveland, OH

Research Internship September 2014 – December 2014
Telefónica I+D Barcelona, Spain

Teaching Assistant

Case Western Reserve University

August 2010 – December 2012

Cleveland, OH

- Courses: Computer Networks, Analysis of Algorithms, and Data Structures

Programmer

Game Communications / TypeFrag

September 2006 – July 2009

Cleveland, OH

Publications

- Al-Dalky, R. & **K. Schomp**. “Characterization of Collaborative Resolution in Recursive DNS Resolvers.” In *Passive and Active Measurement Conference (PAM)*, pp. 146-157. Springer International Publishing, 2018. *
- **Schomp, K.**, M. Rabinovich, & M. Allman. “Towards a Model of DNS Client Behavior.” In *Passive and Active Measurement Conference (PAM)*, pp. 263-275. Springer International Publishing, 2016.
- Varvello, M., **K. Schomp**, D. Naylor, J. Blackburn, A. Finamore, & K. Papagiannaki. “Is the Web HTTP/2 Yet?.” In *Passive and Active Measurement Conference (PAM)*, pp. 218-232. Springer International Publishing, 2016.
- Naylor, D., **K. Schomp**, M. Varvello, I. Leontiadis, J. Blackburn, D. Lopez, K. Papagiannaki, P. Rodriguez, & P. Steenkiste. “multi-context TLS (mcTLS): Enabling Secure In-Network Functionality in TLS.” In *Proceedings of the Conference of the ACM Special Interest Group on Data Communication (SIGCOMM)*, pp. 199-212. ACM, 2015.
- **Schomp, K.**, M. Allman, & M. Rabinovich. “DNS resolvers considered harmful.” In *Proceedings of the ACM Workshop on Hot Topics in Networks (HotNets)*, pp. 16-22. ACM, 2014. *
- **Schomp, K.**, T. Callahan, M. Rabinovich, & M. Allman. “Assessing DNS vulnerability to record injection.” In *Passive and Active Measurement Conference (PAM)*, pp. 214-223. Springer International Publishing, 2014. *
- **Schomp, K.**, T. Callahan, M. Rabinovich, & M. Allman. “On measuring the client-side DNS infrastructure.” In *Proceedings of the Internet Measurement Conference (IMC)*, pp. 77-90. ACM, 2013. *

*gave conference talk

Non-Conference Talks

- Cisco FAST Seminar. “mcTLS: Enabling Secure In-Network Functionality in TLS.” September 2015.
- North American Network Operators Group. “DNS Record Injection Attacks in Home Routers.” June 2014. <https://www.youtube.com/watch?v=KgdVcHhMOWw>.

Awards & Honors

- Worcester Polytechnic Institute STEM Faculty Launch Program (September 2015)
- U.S. Department of Education GAANN Fellowship (August 2010 – July 2013)
- Internet Measurement Conference Travel Grant (October 2013)
- President’s Scholarship of Case Western Reserve University (August 2002 – May 2006)

Professional Activities

- Graduate student judge for Case Western Reserve University Research ShowCASE, 2013 and 2014.
- Peer reviewer for:
 - IEEE/ACM Transactions on Networking
 - ACM Transactions on the Web
 - IET Information Security