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Summary

Eight years of experience designing and implementing low and middle level network protocol stacks in a Unix environment, both for commercial products, and government research.

Education

M.S., Computer Science, Virginia Tech, 1998
B.A., Computer Science (Math minor), Concordia College, Moorhead, MN, 1995

Experience

April 2005 - Present: Principal Scientist , SPARTA, Inc.

SPARTA acquired McAfee Research, and moved the entire organization en masse. At SPARTA I continued the work with Mobile Ad-hoc networks I started at McAfee Research.

February 2002 - April 2005: Research Scientist, McAfee Research

Implemented low level IP and TCP protocols in Intel IXP1200 network processor microcode for the Netbouncer project. Designed a benchmark experiment for the Netbouncer, and implemented a load generator (also with the IXP1200) to perform it.

Designed and implemented a benchmark for McAfee's webshield virus scanning HTTP proxy. Assisted with designing and implementing a prototype high speed Webshield.

Experimented with an IXP1200 based front end processor, to model a method to capture and analyse the traffic on 10Gbit links.

Experimented with regular expression state machines to speed up scanning email for spam signatures for McAfee's spamkiller product.

Helped design and implement a mobile ad-hoc network (MANET) intrusion detection framework, designed and executed a simulation study to evaluate several styles of framework maintenance, for the Army Research Lab funded IDMANET project. Set up a cluster of machines first as a CPU farm for the simulation study, then as a emulation testbed for running live MANET software.

April 1998 - November 2001: Founding Employee, Orblynx, Inc.

Helped design and implement a web proxy cache which was pre-loaded with web pages using satellite links. See the Wormhole Caching paper below.

September 1995 - April 1998: Graduate Student, Virginia Tech

Helped characterize web traffic patterns with the Network Research Group lead by Dr. Marc Abrams and Dr. Edward Fox.

Publications

P. Kruus, D. Sterne, R. Gopaul, M. Heyman, B. Rivera, P. Budulas, B. Luu, T. Johnson, N. Ivanic, and G. Lawler, *In-Band Wormholes and Countermeasures in OLSR Networks*, Proceedings of the Second International Conference on Security and Privacy in Communication Networks, SecureComm 2006, Baltimore, MD, Aug. 28 - Sep. 1, 2006.

R. Thomas, B. Mark, T. Johnson, J. Croall, *Netbouncer: Client Legitimacy based high performance DDOS filtering*, DISCEX 2003 <http://www.cis.udel.edu/~sunshine/F03/CIS659/netbouncer.pdf>

A. Mathur, M. Abrams, H. Chen, T. Oishi, T. Johnson, I. Anwar *Adding Intelligence to Satellite-Based Internet Links: Architecture of a Second-Generation Satellite-Based Internet Delivery System* Inet 99 proceedings. <http://www.isoc.org/inet99/proceedings/4q/4q.2.htm>

H. Chen, M. Abrams, T. Johnson, A. Mathur, I. Anwar, J. Stevenson *Wormhole Caching with HTTP Push Method for a Satellite-Based Global Multi-cast Replication System*, International Caching Workshop, San Diego, March 1999. <http://citeseer.ist.psu.edu/chen99wormhole.html>

B. Liu, G. Abdulla, T. Johnson, E. Fox, "Web Response time and Proxy Caching" Tech Report TR-98-07, <http://citeseer.ist.psu.edu/article/liu98web.html>

Security Clearance

Secret - 2004 to present