Qing Zhang

11545 Caminito La Bar #73 San Diego, 92126 (858)-229-7667 qqzhang@gmail.com

Research Interests

Systems, networking, and security, in particular the development of systems for enforcing data management policies in distributed enterprise settings.

Distributed systems for large scale data-intensive computations.

Education

Ph.D., in Computer Science, University of California, San Diego 2006 – current

BS, in Computer Science, University of Utah, May 2006

Mathematic Minor, University of Utah, May 2006

Experience

Research Assistant in Systems and Networking advised by Geoff Voelker, UCSD

Developing Neon: Neon is a system that provides the utility to allow users to provide fine grained data management within a protected network. In particular it allows the tracking data and derived data at the granularity of a byte. Hence, it's a system capable of enforcing policies on data at the granularity of a byte. We extend existing memory tainting techniques for intrusion detection system to build NEON. We implement NEON using the VMM Xen, and modify the emulator QEMU to handle execution when executing data that is tinted. This technique is transparent in that it does not require any modifications of host operating systems.

Developed Glavlit: Glavlit is a system designed to prevent exfiltration which does not adversely affect the transfer of authorized data works with existing protocols. Key to our approach is: i) separating the process of vetting authorized objects from line-speed data verification; and ii) employing a restricted, but compliant, HTTP subset to limit covert channels. Our prototype implementation of Glavlit shows that verification and covert channel mitigation adds minimal overhead to the operation of a software network bridge.

Research Intern at Microsoft Research Asia advised by Lidong Zhou (2008)

- Setup Dryad on a DCell cluster and explored the network traffic of data intensive applications. Profiled the behavior of DryadLINQ applications.

Research Assistant in Database advised by Juliana Freire, Univ. of Utah (2005)

- Implemented a new Query Translation named ShreXQuery, which translate XML

based queries, in particular XPath, to traditional Relational database System Queries. This Involved traversing the Query Tree and generating SQL queries.

Research Assistant in Operating System advised by YuanYuan Zhou, UIUC (2004)

- The project consists of extending the capability of the Flashback project. Flashback, like the name hints, is a project that can deterministically replay processes: being able to checkpoint a running process and then replay at the checkpoint using shadow pages and tracking system calls. I provided the functionally of allowing multiple checkpoints in Flashback and porting this feature into the Gnu Debugger.

System Administrator, University of Utah (2003-2004)

- Monitored Linux Server, and Routers, installed and Updated Software in Linux Lab, detected and Corrected Security Breaches, and setup PHP and MYSQL database for department

Teaching Assistant, University of Utah, Computer Science course (2003)

- For a class on introduction to computer science using Scheme. Taught a lab for the class graded programming homework for 20 students.

Publications

Glavlit: Preventing Exfiltration at Wire Speed, Nabil Schear, Carmelo Kintana, Qing Zhang, and Amin Vahdat, Proceedings of the 5th ACM Workshop on Hot Topics in Networks (HotNets-V), Irvine, CA, November 2006.

Zhang, Q. (2005) ShreXQuery: An Improved Query Translator for XPath. The University of Utah Abstract Journal of Research, Salt Lake City, UT.

Awards and Accomplishments

- Recipient of NSF Graduate Research Fellowship (2006)
- Recipient of UROP (Undergraduate Research Opportunities Program) (2005)
- Recipient of Scholarship from Math Department (2004-2005)
- Recipient of SWE Scholarship (2005)
- Recipient of the distributed mentor at UIUC funded by the NFS (2004)
- Received funding to attend USENIX Security Symposium from NFS (2004)
- Recipient of the Micron scholarship (2003)

- Recipient of the Techron Scholarship (2003)
- Recipient of the Computer Science Women's Scholarship (2003)
- Member of National Dean's list (2003)
- Recipient of the Clyde Christensen Scholarship (2002)
- Dean's List (2001- presents)

Reference

Provided upon request