Howard Gobioff

School of Computer Science
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Interests

computer security, electronic commerce, distributed systems, networking, operating systems, storage systems

Education

Ph. D., Computer Science
9/93 to present

Computer Science Department, Carnegie Mellon University, Pittsburgh

Expected Ph.D. completion late sumer 1999
Advised by Garth Gibson and Doug Tygar

Thesis Committee: Garth Gibson (co-chair), Doug Tygar (co-chair), M. Satyanarayanan, B. Clifford Neuman, and Bennet Yee

M.S., Computer Science
9/93 to 5/95

Computer Science Department, Carnegie Mellon University, Pittsburgh

B.S., Math & Computer Science
9/89 to 5/93

University of Maryland, College Park
Graduated Magna Cum Laude
GPA 3.86/4.0

Experience

Doctoral Thesis Research
03/97 to present

Parallel Data Lab, Carnegie Mellon University, Pittsburgh

Original research on *Security for Network Attached Storage* as part of the Parallel Data Lab's Network-Attached Secure Disks (NASD) project which was sponsored by ARPA and an industry consortium including 3COM, HP, IBM, Intel, Seagate, Siemens, StorageTek, and Quantum. Designed and implemented a security system for network attached storage devices. Evaluated design choices in security system to provide maximum flexibility and performance from a secure distributed system built on network-attached storage.

Intern/Visiting Researcher
05/96 to 8/96

Network Technology Group, NTT Data, Tokyo

Consulted on system design for electronic commerce applications. Presented a seminar on computer security. Designed and implemented a Digital Notary Service.

Research Assistant
9/93 to present

School of Computer Science, Carnegie Mellon University, Pittsburgh

Research in both computer security and high performance storage systems which converge in my doctoral thesis. Analyzed performance of distributed file systems and their mappings to network attached storage systems. Incorporated NASD security system in NASD based AFS and NFS prototypes. Modified filesystem server to collect trace information. Member of team that created the initial design, interfaces, and implementation of CMU's network attached secure disk prototype.

Research Assistant
9/93 to present

Researched electronic commerce issues including applications and limitations of smart cards. Participated in site audits of postal meter vendor data system security for United

Sates Postal Service. Evaluated postal meter system security. Reviewed security of designs for electronic postage systems.

Teaching Assistant
1/94 to 5/94
1/95 to 5/95

School of Computer Science, Carnegie Mellon University, Pittsburgh

Teaching assistant for Masters level distributed systems course and introductory level programming course. Responsible for grading, office hours, and supporting projects in the distributed systems course. Taught regular recitations of introductory level course along with grading, office hours, and supporting student projects.

Intern
5/94 to 8/94

Workplace OS Functional Verification Testing
International Business Machines, Boca Raton, FL

Ported testcases to OS/2 2.1 API set for Workplace OS FVT. Identified bugs in OS/2 file system API implementation and OS/2 kernel implementation as well as suggesting fixes to kernel implementation.

Intern
5/93 to 8/93

Multimedia Networking, Bell Communication Research, Morristown, NJ

Designed and built a prototype server for an ISDN based high quality multimedia data delivery system. Evaluated scalability and performance of the system.

Intern
5/92 to 8/92

Scientific Visualization Group, Argonne National Lab, Argonne, IL

Designed and implemented AVS based tools for visualization of simulated climate data to support ongoing research. Implemented parallelized version of Marching Cubes volume visualization algorithm for use on workstation clusters.

Intern
5/91 to 8/91
5/90 to 8/90
5/89 to 8/89

International Business Machines, Boca Raton, FL and Gaithersburgh, MD

Internships over several summers. Designed and implemented prototype user-friendly multimedia CD-ROM install system for the Ultimedia personal computer product line.

Integrated component level VHDL models into a system level model for system level testing. Built a prototype multimedia storage server-based parts database system for use by repair shops that allowed them to avoid thousands of pages of paper documentation. Integrated VM/SP servers running SQL databases with PC clients.

Skills

Development Experience

- computer security, computer networking, operating systems, distributed systems, electronic commerce, storage systems

Platforms

- Linux, Digital UNIX, DOS, Windows 95, Windows NT, VM/SP, TCP/IP Networking

Programming Languages

- C, C++, Java, FORTRAN, LISP, Pascal, Perl

Publications

Gobioff, H., Nagle, D., and Gibson, G., “Integrity and Performance in Network Attached Storage”, To appear in *Proceedings of the International Symposium on High Performance Computing* (ISHPC ‘99), 1999.

Gibson, G., Nagle, D., Gobioff, H. et al, “A Cost-Effective, High-Bandwidth Storage Architecture”, In *Proceedings of the 8th Conference on Architectural Support for Programming Languages and Operating Systems* (ASPLOS), 1998.

Gobioff, H., Gibson, G. and Tygar, J. D., “Security for Network Attached Storage Devices”, *CMU CS Technical Report CMU-CS-97-185*

Gibson, G. Nagle, D., Gobioff, H. et al, “File Server Scaling with Network-Attached Secure Disks”, In *Proceedings of the ACM International Conference on Measurement and Modeling of Computer Systems* (Sigmetrics '97)

Gibson, G., Nagle, D. Gobioff, H. et al, “Filesystems for Network-Attached Secure Disks”, *CMU CS Technical Report CMU-CS-97-118*

Gobioff, H., Smith, S., Tygar, and J. D., Yee, “Smart cards in hostile environments”, In *Proceedings of the 2nd USENIX Workshop on Electronic Commerce*, November 1996, pages 23 - 28.

Talks

November 1998 “Can NASD deliver security and performance?”
Parallel Data Systems Retreat, Nemacolin, PA

October 1997 “Directions for NASD Security Research”
Parallel Data Systems Retreat, Nemacolin, PA

March 1997 “NASD Security Overview”
National Storage Industry Consortium - Network Attached Storage Device Project Meeting, San Jose, CA

November 1996 “NASD Security Overview”
Parallel Data Systems Retreat, Deep Creek Lake, MD

September 1996 “Smart cards in hostile environments”
Second USENIX Workshop on Electronic Commerce, Oakland, CA

Other Information

Awards

NSF Graduate Research Fellowship (1993-1995)
IBM Watson Scholarship (1989-1993)
Maryland Distinguished Scholar

Citizenship

USA

Languages

Rudimentary knowledge of Japanese