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Research Interests My research interests include, distributed systems, operating systems, and networking.
Networking:
My thesis is the first one to show that using a first principles approach we can generate realistic and responsive network traffic for any given link on the Internet in a local testbed. My thesis also argues that in order to evaluate distributed systems and networked services in a realistic manner in an experimental testbed, a key ingredient to model correctly is background traffic. This is the traffic that results from sharing the network with other users and applications. I have also worked on making laboratory based network emulation more scalable, including adding provision for hierarchical routing.
Systems:
I am also interested in understanding how large organizations, data centers etc. would evaluate their systems prototype or planned upgrades. I argue that using a handful of machines running virtual machines, with appropriately dilated (slowed down) time, and the right choice of CPU scheduling parameters we can easily achieve a 1:10 scale down in the amount of resources required to perform such an evaluation.

Education Ph.D. Computer Science, University of California San Diego, 2008 (Expected).
B.Tech. Computer Science and Engineering, Indian Institute of Technology Bombay, 2001.

Experience

Research Assistant UC San Diego	Amin Vahdat Jan 2004 – Present
Summer Intern AT&T Research Labs	Balachander Krishnamurthy May – Aug 2002, June – Aug 2004
Research Assistant Duke University	Amin Vahdat Sep 2001 – Dec 2003
Core Group Member	MyZus.com (Internet Startup, IIT Bombay) Feb – June 1999

Refereed Publications *Evaluating Distributed Systems: Does Background Traffic Matter?* Kashi Vishwanath and Amin Vahdat. Proceedings of **USENIX** Annual Technical Conference, June 2008.
Diecast: Testing Distributed Systems with an Accurate Scale Model. Diwaker Gupta, Kashi Vishwanath and Amin Vahdat. Proceedings of Networked Systems Design and Implementation (**NSDI**), April 2008.

Cloud Control with Distributed Rate Limiting. Proceedings of ACM **SIGCOMM**, August 2007. Barath Raghavan, Kashi Vishwanath, Sriram Ramabhadran, Kenneth Yocum and Alex C. Snoeren (**Best Student Paper Award**).

Realistic and Responsive Network Traffic Generation. Proceedings of ACM **SIGCOMM**, September 2006. Kashi Vishwanath and Amin Vahdat.

Swing: Generating Representative High-Speed Packet Traces. Extended Abstract, ACM **SIGCOMM**, August 2005. Kashi Vishwanath and Amin Vahdat.

Routing in an Internet-Scale Network Emulator. Proceedings of the IEEE/ACM International Symposium on Modeling, Analysis, and Simulation of Computer and Telecommunication Systems (**MASCOTS**), October 2004. Jay Chen, Diwaker Gupta, Kashi Vishwanath, Alex C. Snoeren and Amin Vahdat.

Design, Implementation and Evaluation of a Client Characterization Driven Web Server. Proceedings of the Twelfth World Wide Web Conference (**WWW**), May 2003. Balachander Krishnamurthy, Craig Wills, Yin Zhang and Kashi Vishwanath

Publications (Under Review) *Realistic and Responsive Network Traffic Generation.* Submit to Transactions on Networking, April 2007. Kashi Vishwanath and Amin Vahdat.

Teaching Assistant

Computer Communications Networks (graduate course), UC San Diego, Winter 2005.

Computer Communications Networks (graduate course), UC San Diego, Winter 2004.

Programming Design and Analysis II (undergraduate course), Duke University, Fall 2002.

Mathematical Foundations of Computer Science (undergraduate course), Duke University, Spring 2002.

Honors and Awards

Best student paper award, ACM Sigcomm 2007.

Stood third (in a team of three) in Eureka 2001, an Asia-wide, \$ 25,000 business plan competition held at IIT Bombay, India in April 2002.

Finalists (in a team of three) in the Business plan competition organized by the University of Maryland in March 2002.

Graduate Fellowship from the department of computer science, Duke University, 2001.

**External
Activities**

Shadow PC reviewer for Sigcomm 2006.

Reviewer for ToIT 2007, IET 2006.

Technical Skills

Proficient in C/C++, Java, x86 Assembly Language, Python, Perl, UNIX Applications Development and Network Programming.

Comfortable in UNIX (Linux, FreeBSD, and Solaris), Windows XP environments.

Considerable familiarity with Visual C++ , CGI, JavaScript, SQL, Pascal, Fortran and Cobol. Exposure to various packages like Office, Matlab and writing FreeBSD modules.

References

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