Brent E. Stephens

Contact Information

Duncan Hall 3006
Department of Computer Science
Rice University
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Houston, TX 77005

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Research Interests

Data Center Networking, Network Measurement, Network Architecture, Transport Protocols, Virtualization, Distributed Systems, Operating Systems, Computer Architecture

Education

Rice University, Houston, Texas USA
George R. Brown School of Engineering

Ph.D. Student, Computer Science, Fall 2009 (expected graduation date: early 2015)

M.S., Computer Science, May 2012
- Thesis Topic: "Designing Scalable Networks for Future Large Datacenters"
- Advisors: Alan L. Cox and Scott Rixner

B.S., Electrical Engineering, May 2009
- GPA in Major: 3.94/4.00

Honors and Awards

IBM Ph.D. Fellowship, 2012 - 2014

Texas Instruments Fellowship, August 2009 - present

Rice University: graduated Magna Cum Laude, May 2009

Academic Experience

Rice University, Houston, Texas USA

Research Assistant **August 2009 - present**
Researching the design of Ethernet replacements and studying the scalability of Ethernet replacement architectures.

Teaching Assistant with approval of Dean of Engineering **August 2010 - May 2012**
Duties included developing course materials for labs, leading labs, sharing administrative responsibilities, and oversight of teaching assistants and graders.
- COMP 221: Introduction to Computer Systems

Teaching Assistant **August 2009 - August 2010**
Duties included office hours, grading, and leading weekly computer lab exercises.
- COMP 221: Introduction to Computer Systems
- COMP 421: Operating Systems and Concurrent Programming

Professional Experience

IBM Research, Austin, TX USA

Research Intern **May 2011 – September 2011, July 2012 – September 2012, July 2013 – October 2013**
- Contact: John Carter - retrac@us.ibm.com; (512) 286-5584

Valhalla (valhalla.rice.edu), Houston, TX USA

Manager **May 2011 – May 2012**
Successfully managed an on-campus pub with over 90 volunteer employees, maintained and priced inventory, interfaced with distributors, introduced new events, and turned a profit

Intel Corporation, Hillsboro, Oregon USA

Intern **May 2008 - August 2008**

- Contact: Project Lead: Mark Montecalvo - mark.v.montecalvo@intel.com; (503) 442-6146

ViaSat Inc., Carlsbad, California USA

Intern **May 2007 - August 2007**

- Contact: HR Representative: Janna Massoth - Janna.Massoth@viasat.com; (916) 442-1364

Publications

J. Rasley, B. Stephens, C. Dixon, E. Rozner, W. Felter, K. Agarwal, J. Carter, R. Fonseca. "Planck: Millisecond-scale Monitoring and Control for Commodity Networks." *SIGCOMM 2014*, Chicago, IL (August 2014)

B. Stephens, A.L. Cox, A. Singla, J. Carter, C. Dixon, W. Felter. "Practical DCB for Improved Data Center Networks." *INFOCOM 2014*, Toronto, ON (April 2014)

J. Rasley, B. Stephens, C. Dixon, E. Rozner, W. Felter, K. Agarwal, J. Carter, R. Fonseca. "Low-latency Network Monitoring via Oversubscribed Port Mirroring." *ONS 2014*, Santa Clara, CA (March 2014)

B. Stephens A.L. Cox, S. Rixner. "Plinko: Building Provably Resilient Forwarding Tables." *HotNets 2013*, College Park, MD (November 2013)

B. Stephens, A.L. Cox, W. Felter, C. Dixon, J. Carter. "PAST: Scalable Ethernet for Data Centers." *ACM CoNEXT 2012*, Nice, France (December 2012).

B. Stephens, A.L. Cox, S. Rixner, T.S.E. Ng. 2011. "A Scalability Study of Enterprise Network Architectures." *ANCS 2011*, New York, NY (October 2011)

J. Shafer, B. Stephens, M. Foss, S. Rixner, A.L. Cox. 2010. "Axon: A Flexible Substrate for Source-routed Ethernet." *ANCS 2010*, San Diego, CA (October 2010)

Conference Presentations

B.Stephens, A. L. Cox, A. Singla, J. Carter, C. Dixon, W. Felter "Practical DCB for Improved Data Center Networks." *Infocom 2014*, Toronto, Canada (May 2014).

B. Stephens, A. L. Cox, S. Rixner. "Plinko: Building provably resilient forwarding tables." *HotNets 2013*, Washington D.C. (November 2013).

B. Stephens, A. L. Cox, W. Felter, C. Dixon, J. Carter. "PAST: Scalable Ethernet for Data Centers." *ACM CoNEXT 2012*, Nice, France (December 2012).

B. Stephens, A.L. Cox, S. Rixner, T.S.E. Ng. 2011. "A Scalability Study of Enterprise Network Architectures." *ACM/IEEE Symposium on Architectures for Networking and Communications Systems (ANCS 2011)*, New York, NY (October 2011)

Significant Class Projects

Comp 519: Network Systems Architecture **Spring 2008**
Implemented a software IP router in C and both a learning Ethernet switch and hardware IP router in Verilog on the NetFPGA platform.

Comp 521: Advanced Operating Systems **Fall 2008**
Implemented a hypervisor in the FreeBSD kernel so that it can run unmodified x86 guest operating systems.

Comp 529: Computer Networks: Architecture and Protocols **Fall 2009**
Evaluated the effectiveness of different active queue management and transport protocol solutions to incast collapse.

References

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