

# nsdi'08

SPONSORED BY USENIX IN COOPERATION WITH AGM SIGCOMM & ACM SIGOPS

**5th USENIX Symposium on Networked Systems Design and Implementation**  
APRIL 16–18, 2008 • SAN FRANCISCO, CALIFORNIA

# USENIX

Join us in San Francisco, CA, April 16–18, 2008, for the latest in networked systems research. The NSDI symposium focuses on the design principles of large-scale networks and distributed systems. With 30 papers selected, the 2008 program includes:

- Refereed papers representing a diverse range of hot research areas including energy, scale, security, and fault tolerance
- Poster session: Submissions are due March 10, 2008. See [www.usenix.org/nsdi08/posters](http://www.usenix.org/nsdi08/posters) for information on how to submit your work.

Don't miss out on the best of current networked systems research and practice.

#### Check out these co-located workshops:

- Usability, Psychology, and Security 2008 (UPSEC '08), April 14, 2008
- First USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET '08), April 15, 2008
- Workshop on Organizing Workshops, Conferences, and Symposia for Computer Systems (WOWCS '08), April 15, 2008

<http://www.usenix.org/nsdi08/workshops>

#### REGISTRATION/HOTEL INFORMATION

**Early Bird Registration Deadline: Monday, March 24, 2008**

USENIX is pleased to offer an Early Bird Registration Discount of \$150 to those who register for NSDI '08 by Monday, March 24, 2008. After March 24, registration fees increase.

#### Registration Fees

Technical Sessions	Before March 24	After March 24
	\$725	\$875

If you are not a member of USENIX, ACM SIGOPS, ACM SIGCOMM, EurOpen.SE, or NUUG, add \$120 to your technical sessions fees.

#### Registration Fee for Full-Time Students: \$270

This special low registration fee is available at any time.

Students who are not members of USENIX, add \$45 to your technical sessions fees.

#### Hotel Information

**Hotel Reservation Discount Deadline: March 24, 2008**

#### Holiday Inn Golden Gateway

Special Attendee Room Rate: \$144 single/double plus 14% tax and \$0.05 per night tourism tax

Book online at [www.usenix.org/events/nsdi08/holidayinn.html](http://www.usenix.org/events/nsdi08/holidayinn.html)

#### SYMPOSIUM ORGANIZERS

##### Program Co-Chairs

Jon Crowcroft, *University of Cambridge*  
Mike Dahlin, *University of Texas at Austin*

##### Program Committee

Paul Barham, *Microsoft Research*  
Ken Birman, *Cornell University*  
Miguel Castro, *Microsoft Research*  
Jeff Chase, *Duke University*  
Steve Gribble, *University of Washington*  
Matthias Grossglauser, *Nokia Research Center/EPFL*  
Krishna Gummadi, *Max Planck Institute for Software Systems*  
Steven Hand, *University of Cambridge*  
Brad Karp, *University College, London*  
Dina Katabi, *Massachusetts Institute of Technology*  
Eddie Kohler, *University of California, Los Angeles*  
Sue Moon, *KAIST*  
Robert Morris, *Massachusetts Institute of Technology*  
Sylvia Ratnasamy, *Intel Research*  
Luigi Rizzo, *ICIR*  
Timothy Roscoe, *ETH Zürich*  
Srinivasan Seshan, *Carnegie Mellon University*  
Emin Gün Sirer, *Cornell University*  
Amin Vahdat, *University of California, San Diego*  
Arun Venkataramani, *University of Massachusetts Amherst*

##### Steering Committee

Thomas Anderson, *University of Washington*  
Mike Jones, *Microsoft Research*  
Greg Minshall  
Robert Morris, *Massachusetts Institute of Technology*  
Mike Schroeder, *Microsoft Research*  
Amin Vahdat, *University of California, San Diego*  
Ellie Young, *USENIX*

##### Poster Session Co-Chairs

Krishna Gummadi, *Max Planck Institute for Software Systems*  
Arun Venkataramani, *University of Massachusetts Amherst*

#### THANKS TO OUR SPONSORS

Microsoft  
**Research**

**Google™**



#### Thanks to Our Media Sponsors

ACM Queue  
Addison Wesley Professional/  
Prentice Hall Professional  
InfoSec News

ITToolbox  
Linux Gazette  
Linux Journal  
Linux+DVD

Linux Pro Magazine  
LXer  
The Register  
StorageNetworking.org

## Wednesday, April 16

8:15 a.m.–8:30 a.m. Wednesday

### Opening Remarks and Awards

Program Co-Chairs: Jon Crowcroft, *University of Cambridge*; Mike Dahlin, *University of Texas at Austin*

8:30 a.m.–9:30 a.m. Wednesday

### Keynote Address

Speaker: Ian Pratt, Senior Lecturer, *University of Cambridge Computer Laboratory*, and Fellow, *King's College Cambridge*

9:30 a.m.–10:00 a.m. Break

10:00 a.m.–noon Wednesday

### Trust

Session Chair: Miguel Castro, *Microsoft Research*

### One Hop Reputations for Peer to Peer File Sharing Workloads

Michael Piatek, Tomas Isdal, Arvind Krishnamurthy, and Thomas Anderson, *University of Washington*

### Ostra: Leveraging Trust to Thwart Unwanted Communication

Alan Mislove and Ansley Post, *Max Planck Institute for Software Systems and Rice University*; Peter Druschel and Krishna P. Gummadi, *Max Planck Institute for Software Systems*

### Detecting In-Flight Page Changes with Web Tripwires

Charles Reis, Steven D. Gribble, and Tadayoshi Kohno, *University of Washington*; Nicholas C. Weaver, *International Computer Science Institute*

### Phalax: Withstanding Multimillion-Node Botnets

Colin Dixon, Thomas Anderson, and Arvind Krishnamurthy, *University of Washington*

Noon–1:30 p.m. Lunch (on your own)

1:30 p.m.–3:30 p.m. Wednesday

### Wireless

Session Chair: Brad Karp, *University College, London*

### Harnessing Exposed Terminals in Wireless Networks

Mythili Vutukur, Kyle Jamieson, and Hari Balakrishnan, *MIT Computer Science and Artificial Intelligence Laboratory*

### Designing High Performance Enterprise Wi-Fi Networks

Rohan Murty, *Harvard University*; Jitendra Padhye, Ranveer Chandra, Alec Wolman, and Brian Zill, *Microsoft Research*

### FatVAP: Aggregating AP Backhaul Capacity to Maximize Throughput

Srikanth Kandula, *Massachusetts Institute of Technology*; Kate Ching-Ju Lin, *National Taiwan University and Massachusetts Institute of Technology*; Tural Badirkhanli and Dina Katabi, *Massachusetts Institute of Technology*

### Efficiency Through Eavesdropping: Link-layer Packet Caching

Mikhail Afanasyev, *University of California, San Diego*; David G. Andersen, *Carnegie Mellon University*; Alex C. Snoeren, *University of California, San Diego*

3:30 p.m.–4:00 p.m. Break

4:00 p.m.–5:30 p.m. Wednesday

### Large-scale Systems

Session Chair: Ken Birman, *Cornell University*

### Beyond Pilots: Keeping Rural Wireless Networks Alive

Sonesh Surana, Rabin Patra, and Sergiu Nedevschi, *University of California, Berkeley*; Manuel Ramos, *University of the Philippines*; Lakshminarayanan Subramanian, *New York University*; Yahel Ben-David, *AirJaldi, Dharamsala, India*; Eric Brewer, *University of California, Berkeley, and Intel Research, Berkeley*

### UsenetDHT: A Low-Overhead Design for Usenet

Emil Sit, Robert Morris, and M. Frans Kaashoek, *MIT CSAIL*

### San Fermín: Aggregating Large Data Sets Using a Binomial Swap Forest

Justin Cappos and John H. Hartman, *University of Arizona*

6:00 p.m.–8:00 p.m. Wednesday

### Reception and Poster Session

Held in conjunction with a reception, the poster session will feature interesting work in progress by NSDI attendees. Would you like to share interesting work in progress with the NSDI audience? Submit a proposal to the poster session! Poster sessions introduce new or ongoing work, and the NSDI audience provides valuable discussion and feedback. We are particularly interested in presentations of student work. To submit a poster, please send a proposal, one page or less, by March 10, 2008, to [nsdi08posters@usenix.org](mailto:nsdi08posters@usenix.org). Krishna Gummadi and Arun Venkataramani, the poster session co-chairs, will send back decisions by March 23, 2008.

## Thursday, April 17

8:30 a.m.–10:00 a.m. Thursday

### Fault Tolerance

Session Chair: Arun Venkataramani, *University of Massachusetts Amherst*

### Remus: High Availability via Asynchronous Virtual Machine Replication

Brendan Cully, Geoffrey Lefebvre, Dutch Meyer, Mike Feeley, and Norm Hutchinson, *University of British Columbia*; Andrew Warfield, *University of British Columbia and Citrix Systems, Inc*

### Nysiad: Practical Protocol Transformation to Tolerate Byzantine Failures

Chi Ho and Robbert van Renesse, *Cornell University*; Mark Bickford, *ATC-NY*; Danny Dolev, *Hebrew University of Jerusalem*

### BFT Protocols Under Fire

Atul Singh, *Max Planck Institute for Software Systems and Rice University*; Tathagata Das, *IIT Kharagpur*; Petros Maniatis, *Intel Research Berkeley*; Peter Druschel, *Max Planck Institute for Software Systems*; Timothy Roscoe, *ETH Zürich*

10:00 a.m.–10:30 a.m. Break

10:30 a.m.–12:30 p.m. Thursday

### Monitoring and Measurement

Session Chair: Krishna Gummadi, *Max Planck Institute for Software Systems*

### Uncovering Performance Differences Among Backbone ISPs with Netdiff

Ratul Mahajan and Ming Zhang, *Microsoft Research*; Lindsey Poole and Vivek Pai, *Princeton University*

### Effective Diagnosis of Routing Disruptions from End Systems

Ying Zhang and Z. Morley Mao, *University of Michigan*; Ming Zhang, *Microsoft Research*

### cSAMP: A System for Network-Wide Flow Monitoring

Vyas Sekar, *Carnegie Mellon University*; Michael K. Reiter, *University of North Carolina, Chapel Hill*; Walter Willinger, *AT&T Labs—Research*; Hui Zhang, *Carnegie Mellon University*; Ramana Rao Kompella, *Purdue University*; David G. Andersen, *Carnegie Mellon University*

### Studying Black Holes in the Internet with Hubble

Ethan Katz-Bassett, Harsha V. Madhyastha, John P. John, and Arvind Krishnamurthy, *University of Washington*; David Wetherall, *University of Washington and Intel Research*; Thomas Anderson, *University of Washington*

12:30 p.m.–2:00 p.m. Symposium Luncheon

2:00 p.m.–3:00 p.m. Thursday

### Performance

Session Chair: Timothy Roscoe, *ETH Zürich*

### Maelstrom: Transparent Error Correction for Lambda Networks

Mahesh Balakrishnan, Tudor Marian, Ken Birman, Hakim Weatherspoon, and Einar Vollset, *Cornell University*

### Swift: A Fast Dynamic Packet Filter

Zhenyu Wu, Mengjun Xie, and Haining Wang, *The College of William and Mary*

3:00 p.m.–3:30 p.m. Break

3:30 p.m.–4:30 p.m. Thursday

### Security

Session Chair: Steven Hand, *University of Cambridge*

### Securing Distributed Systems with Information Flow Control

Nickolai Zeldovich, Silas Boyd-Wickizer, and David Mazières, *Stanford University*

### Wedge: Splitting Applications into Reduced-Privilege Components

Andrea Bittau, Petr Marchenko, Mark Handley, and Brad Karp, *University College London*

4:30 p.m.–5:00 p.m. Break

5:00 p.m.–6:00 p.m. Thursday

### Energy

Session Chair: Amin Vahdat, *University of California, San Diego*

### Reducing Network Energy Consumption via Sleeping and Rate-Adaptation

Sergiu Nedevschi and Lucian Popa, *University of California, Berkeley, and Intel Research, Berkeley*; Gianluca Iannaccone and Sylvia Ratnasamy, *Intel Research, Berkeley*; David Wetherall, *University of Washington and Intel Research, Seattle*

### Energy-Aware Server Provisioning and Load Dispatching for Connection-Intensive Internet Services

Gong Chen, *University of California, Los Angeles*; Wenbo He, *University of Illinois at Urbana-Champaign*; Jie Liu and Suman Nath, *Microsoft Research*; Leonidas Rigas, *Microsoft*; Lin Xiao and Feng Zhao, *Microsoft Research*

## Friday, April 18

8:30 a.m.–10:00 a.m. Friday

### Routing

Session Chair: Paul Barham, *Microsoft Research*

### Consensus Routing: The Internet as a Distributed System

John P. John, Ethan Katz-Bassett, Arvind Krishnamurthy, and Thomas Anderson, *University of Washington*; Arun Venkataramani, *University of Massachusetts Amherst*

### Passport: Secure and Adoptable Source Authentication

Xin Liu, Ang Li, and Xiaowei Yang, *University of California, Irvine*; David Wetherall, *Intel Research Seattle and University of Washington*

### Context-based Routing: Technique, Applications, and Experience

Saumitra Das, *Purdue University*; Yunnan Wu and Ranveer Chandra, *Microsoft Research, Redmond*; Y. Charlie Hu, *Purdue University*

10:00 a.m.–10:30 a.m. Break

10:30 a.m.–noon Friday

### Understanding Systems

Session Chair: Emin Gün Sirer, *Cornell University*

### NetComplex: A Complexity Metric for Networked System Designs

Byung-Gon Chun, *ICSI*; Sylvia Ratnasamy, *Intel Research Berkeley*; Eddie Kohler, *University of California, Los Angeles*

### DieCast: Testing Distributed Systems with an Accurate Scale Model

Diwaker Gupta, Kashi V. Vishwanath, and Amin Vahdat, *University of California, San Diego*

### D<sup>2</sup>S: Debugging Deployed Distributed Systems

Xuezheng Liu and Zhenyu Guo, *Microsoft Research Asia*; Xi Wang, *Tsinghua University*; Feibo Chen, *Fudan University*; Xiaochen Lian, *Shanghai Jiaotong University*; Jian Tang and Ming Wu, *Microsoft Research Asia*; M. Frans Kaashoek, *MIT CSAIL*; Zheng Zhang, *Microsoft Research Asia*

See [www.usenix.org/nsdi08](http://www.usenix.org/nsdi08) for more information and to register.