nsdi '10

7th USENIX Symposium on Networked Systems Design and Implementation

April 28–30, 2010 • San Jose, CA

Sponsored by USENIX in cooperation with ACM SIGCOMM and ACM SIGOPS

NSDI '10 will focus on the design principles of large-scale networked and distributed systems in a 3-day technical program including topics such as:

- **Cloud services**
- **Datacenter and wireless networks**
- **And more!**
- **Web browsers and servers**
- **Malware**

Join researchers from across the networking and systems community—including computer networking, distributed systems, and operating systems—in fostering cross-disciplinary approaches and addressing shared research challenges.

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Early Bird Discount

Register by Monday, April 5, and save!

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Don't Miss the Co-located Workshops!

All workshops will take place on April 27, 2010.

- 3rd USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET '10)
- 2010 Internet Network Management Workshop/Workshop on Research on Enterprise Networking (INM/WREN '10)
- 9th International Workshop on Peer-to-Peer Systems (IPTPS '10)

www.usenix.org/nsdi10/workshops

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Wednesday, April 28

8:45 a.m.–9:00 a.m. — Wednesday

Opening Remarks and Awards Presentation
NSDI '10 Program Co-Chairs: Miguel Castro, *Microsoft Research Cambridge;* Alex C. Snoeren, *University of California, San Diego*

9:00 a.m.–10:30 a.m. — Wednesday

Cloud Services
Centrifuge: Integrating Lease Management and Partitioning for Cloud Services
Atul Adya, *Google;* John Dunagan and Alec Wolman, *Microsoft Research*

Volley: Automated Data Placement for Geo-Distributed Cloud Services
Sharad Agarwal, John Dunagan, Navendu Jain, Stefan Saroiu, and Alec Wolman, *Microsoft Research;* Harbinder Bhogan, *University of Toronto*

Optimizing Cost and Performance in Online Service Providers
Zheng Zhang, *Purdue University;* Ming Zhang and Albert Greenberg, *Microsoft Research;* Y. Charlie Hu, *Purdue University;* Ratul Mahajan, *Microsoft Research;* Blaine Christian, *Microsoft Corporation*

10:30 a.m.–11:00 a.m. — Break

11:00 a.m.–noon — Wednesday

Wireless 1
Exploring Link Correlation for Efficient Flooding in Wireless Sensor Networks
Ting Zhu, Ziguo Zhong, Tian He, and Zhi-Li Zhang, *University of Minnesota, Twin Cities*

Supporting Demanding Wireless Applications with Frequency-agile Radios
Lei Yang, *University of California, Santa Barbara;* Wei Hou, *Tsinghua University;* Lili Cao, Ben Y. Zhao, and Haitao Zheng, *University of California, Santa Barbara*

Noon–1:30 p.m. — Lunch (on your own)

1:30 p.m.–3:00 p.m. — Wednesday

Peer-to-Peer
Contracts: Practical Contribution Incentives for P2P Live Streaming
Michael Piatek and Arvind Krishnamurthy, *University of Washington;* Arun Venkataramani, *University of Massachusetts;* Richard Yang, *Yale University;* David Zhang, *PPLive*

Experiences with CoralCDN: A Five-Year Operational View
Michael J. Freedman, *Princeton University*

Whanau: A Sybil-proof Distributed Hash Table
Chris Lesniewski-Laas and M. Frans Kaashoek, *MIT CSAIL*

3:00 p.m.–3:30 p.m. Break

3:30 p.m.–5:00 p.m. — Wednesday

Web Services 1
Crom: Faster Web Browsing Using Speculative Execution
James Mickens, Jeremy Elson, Jon Howell, and Jay Lorch, *Microsoft Research*

WebProphet: Automating Performance Prediction for Web Services
Zhichun Li, *Northwestern University;* Ming Zhang, *Microsoft Research;* Zhaosheng Zhu, *Data Domain Inc.;* Yan Chen, *Northwestern University;* Albert Greenberg and Yi-Min Wang, *Microsoft Research*

Mugshot: Deterministic Capture and Replay for JavaScript Applications
James Mickens, Jeremy Elson, and Jon Howell, *Microsoft Research*

6:00 p.m.–8:00 p.m. — Wednesday

Poster Session and Reception
The poster session will allow researchers to present recent and ongoing projects. See www.usenix.org/nsdi10/posters for details.

Thursday, April 29

9:00 a.m.–10:30 a.m. — Thursday

Wireless 2
CBAR: Constellation Based Rate Adaptation in Wireless Networks
Souvik Sen, Naveen Santhapuri, and Romit Roy Choudhury, *Duke University;* Srihari Nelakuditi, *University of South Carolina*

Scalable WiFi Media Delivery through Adaptive Broadcasts
Sayandeep Sen, Neel Kamal Madabhushi, and Suman Banerjee, *University of Wisconsin—Madison*

Maranello: Practical Partial Packet Recovery for 802.11
Bo Han and Aaron Schulman, *University of Maryland;* Francesco Gringoli, *University of Brescia;* Neil Spring and Bobby Bhattacharjee, *University of Maryland;* Lorenzo Nava, *University of Brescia;* Lusheng Ji, Seungjoon Lee, and Robert Miller, *AT&T Labs—Research*

10:30 a.m.–11:00 a.m. — Break

11:00 a.m.–noon — Thursday

Routing
Reverse traceroute
Ethan Katz-Bassett, *University of Washington;* Harsha V. Madhyastha, *University of California, San Diego;* Vijay Kumar Adhikari, *University of Minnesota;* Colin Scott, Justine Sherry, Peter van Wesep, Thomas Anderson, and Arvind Krishnamurthy, *University of Washington*

Router Grafting
Eric Keller and Jennifer Rexford, *Princeton University;* Jacobus van der Merwe, *AT&T Labs—Research*

Noon–1:30 p.m. — Lunch

1:30 p.m.–3:00 p.m. — Thursday

Datacenter Networking
ElasticTree: Saving Energy in Data Center Networks
Brandon Heller, *Stanford University;* Srini Seetharaman, *Deutsche Telekom R&D Lab;* Priya Mahadevan, *Hewlett-Packard Labs;* Yiannis Yiakoumis, *Stanford University;* Puneet Sharma and Sujata Banerjee, *Hewlett-Packard Labs;* Nick McKeown, *Stanford University*

SPAIN: COTS Data-Center Ethernet for Multipathing over Arbitrary Topologies
Jayaram Mudigonda and Praveen Yalagandula, *HP Labs;* Mohammad Al-Fares, *University of California, San Diego;* Jeffrey C. Mogul, *HP Labs*

Hedera: Dynamic Flow Scheduling for Data Center Networks
Mohammad Al-Fares and Sivasankar Radhakrishnan, *University of California, San Diego;* Barath Raghavan, *Williams College;* Nelson Huang and Amin Vahdat, *University of California, San Diego*

3:00 p.m.–3:30 p.m. — Break

3:30 p.m.–4:30 p.m. — Thursday

Improving MapReduce
Airavat: Security and Privacy for MapReduce
Indrajit Roy, Srinath Setty, Ann Kilzer, Vitaly Shmatikov, and Emmett Witchel, *The University of Texas at Austin*

MapReduce Online
Tyson Condie, Neil Conway, Peter Alvaro, and Joseph M. Hellerstein, *University of California, Berkeley;* Khaled Elmeleegy and Russell Sears, *Yahoo! Research*

4:30 p.m.–5:00 p.m. — Break

5:00 p.m.–6:00 p.m. — Thursday

Web Services 2
The Architecture and Implementation of an Extensible Web Crawler
Jonathan M. Hsieh, Steven D. Gribble, and Henry M. Levy, *University of Washington*

Prophecy: Using History for High-Throughput Fault Tolerance
Siddhartha Sen, Wyatt Lloyd, and Michael J. Freedman, *Princeton University*

Friday, April 30

9:00 a.m.–10:30 a.m. — Friday

Malware
Carousel: Scalable Logging for Intrusion Prevention Systems
Terry Lam, *University of California, San Diego;* Michael Mitzenmacher, *Harvard University;* George Varghese, *University of California, San Diego*

SplitScreen: Enabling Efficient, Distributed Malware Detection
Sang Kil Cha, Iulian Moraru, Jiyong Jang, John Truelove, David Brumley, and David Andersen, *Carnegie Mellon University*

Behavioral Clustering of HTTP-based Malware and Signature Generation using Malicious Network Traces
Roberto Perdisci, *Georgia Institute of Technology and Damballa, Inc.;* Wenke Lee and Nick Feamster, *Georgia Institute of Technology*

10:30 a.m.–11:00 a.m. — Break

11:00 a.m.–12:30 p.m. — Friday

Network Performance
Glasnost: Enabling End Users to Detect Traffic Differentiation
Marcel Dischinger, Saikat Guha, Massimiliano Marcon, and Krishna P. Gummadi, *MPI-SWS;* Ratul Mahajan and Stefan Saroiu, *Microsoft Research*

EndRE: An End-System Redundancy Elimination Service for Enterprises
Bhavish Aggarwal, *Microsoft Research India;* Aditya Akella and Ashok Anand, *University of Wisconsin—Madison;* Pushkar Chitnis, *Microsoft Research India;* Chitra Muthukrishnan, *University of Wisconsin—Madison;* Athula Nair, *Carnegie Mellon University;* Ram Ramjee, *Microsoft Research India;* George Varghese, *University of California, San Diego*

Cheap and Large CAMs for High Performance Data-Intensive Networked Systems
Ashok Anand, Chitra Muthukrishnan, Steven Kappes, and Aditya Akella, *University of Wisconsin—Madison;* Suman Nath, *Microsoft Research*