nsdi '11

8th USENIX Symposium on Networked Systems Design and Implementation

March 30–April 1, 2011 • Boston, MA

Sponsored by USENIX in cooperation with ACM SIGCOMM and ACM SIGOPS

NSDI '11 will focus on the design principles, implementation, and practical evaluation of large-scale networked and distributed systems in a 3-day technical program including topics such as:

- **Data-intensive computing**
- **Debugging and correctness**
- **And more!**
- **Energy and storage**
- **Security and privacy**

Take advantage of this opportunity to join researchers from across the networking and systems community in fostering a broad approach to addressing common research challenges.

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Early Bird Discount

Register by Monday, March 7, and save!

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Don't Miss the Co-located Workshops!

Both workshops will take place on March 29, 2011.

- 4th USENIX Workshop on Large-Scale Exploits and Emergent Threats (LEET '11)
  www.usenix.org/leet11

- Workshop on Hot Topics in Management of Internet, Cloud, and Enterprise Networks and Services (Hot-ICE '11)
  www.usenix.org/hotice11

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Wednesday, March 30

8:45 a.m.–9:00 a.m. — Wednesday

Opening Remarks and Awards Presentation

NSDI '11 Program Co-Chairs: David G. Andersen, *Carnegie Mellon University;* Sylvia Ratnasamy, *Intel Labs Berkeley*

9:00 a.m.–10:30 a.m. — Wednesday

Speed, Speed, and More Speed

SSLShader: Cheap SSL Acceleration with Commodity Processors

Keon Jang and Sangjin Han, *KAIST;* Seungyeop Han, *University of Washington;* Sue Moon and Kyoungsoo Park, *KAIST*

ServerSwitch: A Programmable and High Performance Platform for Data Center Networks

Guohan Lu, Chuanxiong Guo, Yulong Li, Zhiqiang Zhou, Haitao Wu, Yongqiang Xiong, Tong Yuan, Rui Gao, and Yongguang Zhang, *Microsoft Research Asia*

TritonSort: A Balanced Large-Scale Sorting System

Alexander Rasmussen, George Porter, and Michael Conley, *University of California, San Diego;* Harsha V. Madhyastha, *University of California, Riverside;* Radhika Niranjan Mysore, *University of California, San Diego;* Alexander Pucher, *Vienna University of Technology;* Amin Vahdat, *University of California, San Diego*

10:30 a.m.–11:00 a.m. — Break

11:00 a.m.–noon — Wednesday

Performance Diagnosis

Diagnosing Performance Changes by Comparing System Behaviours

Raja R. Sambasivan, *Carnegie Mellon University;* Alice X. Zheng, *Microsoft Research;* Elie Krevat, Spencer Whitman, Michael Stroucken, William Wang, Lianghong Xu, and Gregory R. Ganger, *Carnegie Mellon University*

Profiling Network Performance for Multi-tier Data Center Applications

Minlan Yu, *Princeton University;* Albert Greenberg and Dave Maltz, *Microsoft;* Jennifer Rexford, *Princeton University;* Lihua Yuan, Srikanth Kandula, and Changhoon Kim, *Microsoft*

Noon–1:30 p.m. — Symposium Luncheon

1:30 p.m.–3:00 p.m. — Wednesday

Nothing but Net

Efficiently Measuring Bandwidth at All Time Scales

Frank Uyeda, *University of California, San Diego;* Luca Foschini and Subhash Suri, *University of California, Santa Barbara;* George Varghese, *University of California, San Diego*

ETTM: A Scalable Fault Tolerant Network Manager

Colin Dixon, Hardeep Uppal, Vjekoslav Brajkovic, Dane Brandon, Thomas Anderson, and Arvind Krishnamurthy, *University of Washington*

Design, Implementation and Evaluation of Congestion Control for Multipath TCP

Damon Wischik, Costin Raiciu, Adam Greenhalgh, and Mark Handley, *University College London*

3:00 p.m.–3:30 p.m. Break

3:30 p.m.–5:00 p.m. — Wednesday

Data-Intensive Computing

CIEL: A Universal Execution Engine for Distributed Data-Flow Computing

Derek G. Murray, Malte Schwarzkopf, Christopher Smowton, Steven Smith, Anil Madhavapeddy, and Steven Hand, *University of Cambridge Computer Laboratory*

A Knowledge Framework for Data Analysis in Networked Systems

Arun Viswanathan, *University of Southern California Information Sciences Institute;* Alefiya Hussain and Stephen Schwab, *Sparta Inc.;* Jelena Mirkovic, *University of Southern California Information Sciences Institute*

Paxos Replicated State Machines as the Basis of a High-Performance Data Store

William J. Bolosky, *Microsoft Research;* Dexter Bradshaw, Randolph B. Haagens, Norbert P. Kusters, and Peng Li, *Microsoft*

Thursday, March 31

9:00 a.m.–10:30 a.m. — Thursday

Security and Privacy

Bootstrapping Accountability in the Internet We Have

Ang Li, Xin Liu, and Xiaowei Yang, *Duke University*

Privad: Practical Privacy in Online Advertising

Saikat Guha, *Microsoft Research;* Bin Cheng and Paul Francis, *MPI-SWS*

Bazaar: Strengthening User Reputations in Online Marketplaces

Ansley Post, *MPI-SWS and Rice University;* Vijit Shah and Alan Mislove, *Northeastern University*

10:30 a.m.–11:00 a.m. — Break

11:00 a.m.–noon — Thursday

Energy and Storage

Dewdrop: An Energy-Aware Task Scheduler for Computational RFID

Michael Buettner, *University of Washington;* Benjamin Greenstein, *Intel Labs Seattle;* David Wetherall, *University of Washington and Intel Labs Seattle*

SSDAlloc: Hybrid SSD/RAM Memory Management Made Easy

Anirudh Badam and Vivek S. Pai, *Princeton University*

Noon–1:30 p.m. — Lunch (on your own)

1:30 p.m.–3:00 p.m. — Thursday

Debugging and Correctness

Model Checking a Networked System Without the Network

Rachid Guerraoui and Maysam Yabandeh, *EPFL*

FATE and DESTINI: A Framework for Cloud Recovery Testing

Haryadi S. Gunawi, *University of California, Berkeley;* Thanh Do, *University of Wisconsin, Madison;* Pallavi Joshi, Peter Alvaro, and Joseph M. Hellerstein, *University of California, Berkeley;* Andrea C. Arpaci-Dusseau and Remzi H. Arpaci-Dusseau, *University of Wisconsin, Madison;* Koushik Sen, *University of California, Berkeley;* Dhruba Borthakur, *Facebook*

SliceTime: A Platform for Scalable and Accurate Network Emulation

Elias Weingaertner, Florian Schmidt, Hendrik vom Lehn, Tobias Heer, and Klaus Wehrle, *RWTH Aachen University*

3:00 p.m.–3:30 p.m. — Break

3:30 p.m.–4:30 p.m. — Thursday

Mobile Wireless

Accurate, Low-Energy Trajectory Mapping for Mobile Devices

Arvind Thiagarajan, Lenin Ravindranath, Hari Balakrishnan, Samuel Madden, and Lewis Girod, *MIT CSAIL*

Improving Wireless Network Performance Using Sensor Hints

Lenin Ravindranath, Calvin Newport, Hari Balakrishnan, and Samuel Madden, *MIT CSAIL*

5:30 p.m.–7:30 p.m. — Thursday

Poster Session and Reception

NSDI will be continuing its long-running tradition of showcasing early research in progress at a poster session during a reception. Find out more at www.usenix.org/nsdi11/posters.

Friday, April 1

9:00 a.m.–10:30 a.m. — Friday

Datacenters Learning to Share

Mesos: A Platform for Fine-Grained Resource Sharing in the Data Center

Benjamin Hindman, Andy Konwinski, Matei Zaharia, Ali Ghodsi, Anthony D. Joseph, Randy Katz, Scott Shenker, and Ion Stoica, *University of California, Berkeley*

Sharing the Data Center Network

Alan Shieh, *Cornell University and Microsoft Research;* Srikanth Kandula, Albert Greenberg, and Changhoon Kim, *Microsoft Research*

Dominant Resource Fairness: Fair Allocation of Multiple Resources in Datacenters

Ali Ghodsi, Matei Zaharia, Benjamin Hindman, Andy Konwinski, Scott Shenker, and Ion Stoica, *University of California, Berkeley*

10:30 a.m.–11:00 a.m. — Break

11:00 a.m.–12:30 p.m. — Friday

Wireless and More

PIE in the Sky: Online Passive Interference Estimation for Enterprise WLANs

Vivek Shrivastava, Shravan Rayanchu, and Suman Banerjee, *University of Wisconsin—Madison;* Dina Papagiannaki, *Intel Labs, Pittsburgh*

SpecNet: Spectrum Sensing Sans Frontières

Anand Iyer, Krishna Chintalapudi, Vishnu Navda, Ramachandran Ramjee, and Venkata N. Padmanabhan, *Microsoft Research India;* Chandra R. Murthy, *Indian Institute of Science Bangalore*

Towards Street-Level Client-Independent IP Geolocation

Yong Wang, *University of Electronic Science and Technology of China and Northwestern University;* Daniel Burgener, Marcel Flores, and Aleksandar Kuzmanovic, *Northwestern University;* Cheng Huang, *Microsoft Research*

See www.usenix.org/nsdi11 for more information and to register.