# OSDI 10

## 9th USENIX Symposium on Operating Systems Design and Implementation

## October 4–6, 2010, Vancouver, BC, Canada

The ninth OSDI seeks to present innovative, exciting research in computer systems. OSDI brings together professionals from academic and industrial backgrounds in what has become a premier forum for discussing the design, implementation, and implications of systems software.

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## Don't Miss the Co-Located Workshops

- **Diversity '10:** 2nd Workshop on Supporting Diversity in Systems Research, October 2–3

- **SLAML '10:** Workshop on Managing Systems via Log Analysis and Machine Learning Techniques, October 2–3

- **HotDep '10:** Sixth Workshop on Hot Topics in System Dependability, October 3

- **NetEcon '10:** 2010 Workshop on the Economics of Networks, Systems, and Computation, October 3

- **SSV '10:** 5th International Workshop on Systems Software Verification, October 6–7

# Symposium Program

## Monday, October 4

**8:30 a.m.–9:00 a.m.**                                   Monday
### Opening Remarks and Jay Lepreau Best Paper Award
OSDI '10 Program Co-Chairs: Remzi Arpaci-Dusseau, *University of Wisconsin, Madison;* Brad Chen, *Google, Inc.*

**9:00 a.m.–10:30 a.m.**                                   Monday
### Kernels: Past, Present, and Future
**Scaling Applications to Many Cores on Linux**
S. Boyd-Wickizer, A.T. Clements, Y. Mao, A. Pesterev, M.F. Kaashoek, R.T. Morris, and N. Zeldovich, *MIT CSAIL*

**Trust and Protection in the Illinois Browser Operating System**
Shuo Tang, Haohui Mai, and Samuel T. King, *University of Illinois at Urbana-Champaign*

**FlexSC: Flexible System Call Scheduling with Asynchronous, Exception-Less System Calls**
Livio Soares and Michael Stumm, *University of Toronto*

**10:30 a.m.–11:00 a.m.**                                   Break

**11:00 a.m.–12:30 p.m.**                                   Monday
### Inside the Data Center, 1
**Finding a Needle in Haystack: Facebook's Photo Storage**
Doug Beaver, Sanjeev Kumar, Harry C. Li, Jason Sobel, and Peter Vajgel, *Facebook Inc.*

**Availability in Globally Distributed Storage Systems**
Daniel Ford, François Labelle, Florentina Popovici, Murray Stokely, Van-Anh Truong, Luiz Barroso, Carrie Grimes, and Sean Quinlan, *Google, Inc.*

**Nectar: Automatic Management of Data and Computation in Data Centers**
Pradeep Kumar Gunda, Lenin Ravindranath, Chandramohan A. Thekkath, Yuan Yu, and Li Zhuang, *Microsoft Research Silicon Valley*

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

**2:00 p.m.–3:30 p.m.**                                   Monday
### Security Technologies
**System Recovery Using Selective Re-execution**
Taesoo Kim, Xi Wang, Nickolai Zeldovich, and M. Frans Kaashoek, *MIT CSAIL*

**Static Checking of Dynamically-Varying Security Policies in Database-Backed Applications**
Adam Chlipala, *Impredicative LLC*

**Accountable Virtual Machines**
Andreas Haeberlen, *University of Pennsylvania*; Paarijaat Aditya, Rodrigo Rodrigues, and Peter Druschel, *Max Planck Institute for Software Systems (MPI-SWS)*

**3:30 p.m.–4:00 p.m. Break**

**4:00 p.m.–5:30 p.m.**                                   Monday
### Concurrency Bugs
**Bypassing Races in Live Applications with Execution Filters**
Jingyue Wu, Heming Cui, and Junfeng Yang, *Columbia University*

**Effective Data-Race Detection for the Kernel (and Beyond)**
John Erickson, Madanlal Musuvathi, Sebastian Burckhardt, and Kirk Olynyk, *Microsoft Research*

**Ad Hoc Synchronization Considered Harmful**
Weiwei Xiong, *University of Illinois at Urbana-Champaign;* Soyeon Park, Jiaqi Zhang, and Yuanyuan Zhou, *University of California, San Diego;* Zhiqiang Ma, Matthew Frank, Bob Kuhn, and Paul Petersen, *Intel*

**6:00 p.m.–7:30 p.m.**
### Poster Session & Happy Hour
**7:30 p.m.–9:00 p.m.**
### Research Vision Session

## Tuesday, October 5

**9:00 a.m.–10:30 a.m.**                                   Tuesday
### Deterministic Parallelism
**Deterministic Process Groups in dOS**
Tom Bergan, Nicholas Hunt, Luis Ceze, and Steven D. Gribble, *University of Washington*

**Efficient System-Enforced Deterministic Parallelism**
Amittai Aviram, Shu-Chun Weng, Sen Hu, and Bryan Ford, *Yale University*

**Stable Deterministic Multithreading Through Schedule Memoization**
Heming Cui, Jingyue Wu, and Junfeng Yang, *Columbia University*

**10:30 a.m.–11:00 a.m.**                                   Break

**11:00 a.m.–Noon**                                   Tuesday
### Systems Management
**Enabling Configuration-Independent Automation by Non-Expert Users**
Nate Kushman and Dina Katabi, *Massachusetts Institute of Technology*

**Automating Configuration Troubleshooting with Dynamic Information Flow Analysis**
Mona Attariyan and Jason Flinn, *University of Michigan*

**Noon–1:30 p.m.**                   Symposium Luncheon

**1:30 p.m.–3:30 p.m.**                                   Tuesday
### Inside the Data Center, 2
**Incremental Processing of Large Data Sets**
Daniel Peng and Frank Dabek, *Google, Inc.*

**Reining in the Outliers in Map-Reduce Clusters**
Ganesh Ananthanarayanan, *Microsoft and UC Berkeley;* Srikanth Kandula and Albert Greenberg, *Microsoft;* Ion Stoica, *UC Berkeley;* Yi Lu, *Microsoft;* Bikas Saha, *Microsoft Bing*

**Transactional Consistency and Automatic Management in an Application Data Cache**
Dan R.K. Ports, Austin T. Clements, Irene Zhang, Samuel Madden, and Barbara Liskov, *MIT CSAIL*

**Piccolo: Building Fast, Distributed Programs with Partitioned Tables**
Russell Power and Jinyang Li, *New York University*

**3:30 p.m.–4:00 p.m.**                                   Break

**4:00 p.m.–5:30 p.m.**                                   Tuesday
### Cloud Storage
**Depot: Cloud Storage with Minimal Trust**
P. Mahajan, S. Setty, S. Lee, A. Seehra, A. Clement, L. Alvisi, M. Dahlin, and M. Walfish, *The University of Texas at Austin*

**Comet: An Active Distributed Key-Value Store**
Roxana Geambasu, Amit A. Levy, Tadayoshi Kohno, Arvind Krishnamurthy, and Henry M. Levy , *University of Washington*

**SPORC: Group Collaboration using Untrusted Cloud Resources**
Ariel J. Feldman, William P. Zeller, Michael J. Freedman, and Edward W. Felten, *Princeton University*

**6:00 p.m.–7:30 p.m.**                   Symposium Reception

## Wednesday, October 6

**9:00 a.m.–10:30 a.m.**                                   Tuesday
### Production Networks
**Onix: A Distributed Control Platform for Large-scale Production Networks**
Teemu Koponen, Martin Casado, Natasha Gude, and Jeremy Stribling, *Nicira Networks;* Leon Poutievski, Min Zhu, and Rajiv Ramanathan, *Google;* Yuichiro Iwata, Hiroaki Inoue, and Takayuki Hama, *NEC;* Scott Shenker, *International Computer Science Institute (ICSI) and UC Berkeley*

**Can the Production Network Be the Testbed?**
Rob Sherwood, *Deutsche Telekom Inc. R&D Lab;* Glen Gibb, Kok-Kiong Yap, and Guido Appenzeller, *Stanford University;* Martin Casado, *Nicira Networks;* Nick McKeown and Guru Parulkar, *Stanford University*

**Building Extensible Networks with Rule-Based Forwarding**
Lucian Popa, *University of California, Berkeley;* Norbert Egi, *Lancaster University;* Sylvia Ratnasamy, *Intel Labs, Berkeley;* Ion Stoica, *University of California, Berkeley*

**10:30 a.m.–11:00 a.m.**                                   Break

**11:00 a.m.–Noon**                                   Wednesday
### Mobility
**TaintDroid: An Information-Flow Tracking System for Realtime Privacy Monitoring on Smartphones**
William Enck, *The Pennsylvania State University;* Peter Gilbert, *Duke University;* Byung-gon Chun, *Intel Labs;* Landon P. Cox, *Duke University;* Jaeyeon Jung, *Intel Labs;* Patrick McDaniel, *The Pennsylvania State University;* Anmol N. Sheth, *Intel Labs*

**StarTrack Next Generation: A Scalable Infrastructure for Track-Based Applications**
Maya Haridasan, Iqbal Mohomed, Doug Terry, Chandramohan A. Thekkath, and Li Zhang, *Microsoft Research Silicon Valley*

**Noon–1:00 p.m.**                   Lunch (on your own)

**1:00 p.m.–2:30 p.m.**                                   Wednesday
### Virtualization
**The Turtles Project: Design and Implementation of Nested Virtualization**
Muli Ben-Yehuda, *IBM Research—Haifa;* Michael D. Day, *IBM Linux Technology Center;* Zvi Dubitzky, Michael Factor, Nadav Har'El, and Abel Gordon, *IBM Research—Haifa;* Anthony Liguori, *IBM Linux Technology Center;* Orit Wasserman and Ben-Ami Yassour, *IBM Research—Haifa*

**mClock: Handling Throughput Variability for Hypervisor IO Scheduling**
Ajay Gulati, *VMware Inc;* Arif Merchant, *HP Labs;* Peter Varman, *Rice University*

**Virtualize Everything but Time**
Timothy Broomhead, Laurence Cremean, Julien Ridoux, and Darryl Veitch, *Center for Ultra-Broadband Information Networks (CUBIN), The University of Melbourne*