

FAST '11: 9th USENIX Conference on File and Storage Technologies
February 15–17, 2011
San Jose, CA, USA

Message from the Program Co-Chairs v

Wednesday, February 16

Deduplication

A Study of Practical Deduplication 1
Dutch T. Meyer, Microsoft Research and the University of British Columbia; William J. Bolosky, Microsoft Research

Tradeoffs in Scalable Data Routing for Deduplication Clusters 15
Wei Dong, Princeton University; Fred Douglass, EMC; Kai Li, Princeton University and EMC; Hugo Patterson, Sazzala Reddy, and Philip Shilane, EMC

Specializing Storage

Capo: Recapitulating Storage for Virtual Desktops. 31
Mohammad Shamma, Dutch T. Meyer, Jake Wires, Maria Ivanova, Norman C. Hutchinson, and Andrew Warfield, University of British Columbia

Exploiting Half-Wits: Smarter Storage for Low-Power Devices 47
Mastooreh Salajegheh, University of Massachusetts Amherst; Yue Wang, Texas A&M University; Kevin Fu, University of Massachusetts Amherst; Anxiao (Andrew) Jiang, Texas A&M University; Erik Learned-Miller, University of Massachusetts Amherst

Consistent and Durable Data Structures for Non-Volatile Byte-Addressable Memory 61
Shivaram Venkataraman, HP Labs, Palo Alto, and University of Illinois at Urbana-Champaign; Niraj Tolia, Maginatics; Parthasarathy Ranganathan, HP Labs, Palo Alto; Roy H. Campbell, University of Illinois at Urbana-Champaign

Flash

CAFTL: A Content-Aware Flash Translation Layer Enhancing the Lifespan of Flash Memory based Solid State Drives 77
Feng Chen, Tian Luo, and Xiaodong Zhang, The Ohio State University

Leveraging Value Locality in Optimizing NAND Flash-based SSDs 91
Aayush Gupta, Raghav Pisolkar, Bhuvan Uргаonkar, and Anand Sivasubramaniam, The Pennsylvania State University

Reliably Erasing Data from Flash-Based Solid State Drives. 105
Michael Wei, Laura Grupp, Frederick E. Spada, and Steven Swanson, University of California, San Diego

The Disk Ain't Dead

A Scheduling Framework That Makes Any Disk Schedulers Non-Work-Conserving Solely Based on Request Characteristics 119
Yuehai Xu and Song Jiang, Wayne State University

Improving Throughput for Small Disk Requests with Proximal I/O 133
Jiri Schindler, Sandip Shete, and Keith A. Smith, NetApp, Inc.

FastScale: Accelerate RAID Scaling by Minimizing Data Migration 149
Weimin Zheng and Guangyan Zhang, Tsinghua University

Thursday, February 17

Scaling Well

The SCADS Director: Scaling a Distributed Storage System Under Stringent Performance Requirements 163
Beth Trushkowsky, Peter Bodik, Armando Fox, Michael J. Franklin, Michael I. Jordan, and David A. Patterson, University of California, Berkeley

Scale and Concurrency of GIGA+: File System Directories with Millions of Files 177
Swapnil Patil and Garth Gibson, Carnegie Mellon University

AONT-RS: Blending Security and Performance in Dispersed Storage Systems 191
Jason K. Resch, Cleversafe, Inc.; James S. Plank, University of Tennessee

Making Things Right

Emulating Goliath Storage Systems with David 203
Nitin Agrawal, NEC Laboratories America; Leo Arulraj, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau, University of Wisconsin—Madison

Just-in-Time Analytics on Large File Systems 217
H. Howie Huang, Nan Zhang, and Wei Wang, George Washington University; Gautam Das, University of Texas at Arlington; Alexander S. Szalay, Johns Hopkins University

Making the Common Case the Only Case with Anticipatory Memory Allocation 231
Swaminathan Sundararaman, Yupu Zhang, Sriram Subramanian, Andrea C. Arpaci-Dusseau, and Remzi H. Arpaci-Dusseau, University of Wisconsin—Madison

Flash the Second

Exploiting Memory Device Wear-Out Dynamics to Improve NAND Flash Memory System Performance 245
Yangyang Pan, Guiqiang Dong, and Tong Zhang, Rensselaer Polytechnic Institute, USA

FAST: Quick Application Launch on Solid-State Drives 259
Yongsoo Joo, Ewha Womans University; Junhee Ryu, Seoul National University; Sangsoo Park, Ewha Womans University; Kang G. Shin, Ewha Womans University and University of Michigan

Cost Effective Storage using Extent Based Dynamic Tiering 273
Jorge Guerra, Florida International University; Himabindu Pucha, Joseph Glider, and Wendy Belluomini, IBM Research Almaden; Raju Rangaswami, Florida International University