20th USENIX Conference on File and Storage Technologies (FAST '22)

February 22–24, 2022

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Tuesday, February 22

Persistent Memory: Making it Stick
NyxCache: Flexible and Efficient Multi-tenant Persistent Memory Caching
HTMFS: Strong Consistency Comes for Free with Hardware Transactional Memory in Persistent Memory
File Systems
ctFS: Replacing File Indexing with Hardware Memory Translation through Contiguous File Allocation for Persistent Memory
Ruibin Li, Xiang Ren, Xu Zhao, Siwei He, Michael Stumm, and Ding Yuan, University of Toronto
FORD: Fast One-sided RDMA-based Distributed Transactions for Disaggregated Persistent Memory
A Series of Merges
Closing the B+-tree vs. LSM-tree Write Amplification Gap on Modern Storage Hardware with Built-in
Transparent Compression
TVStore: Automatically Bounding Time Series Storage via Time-Varying Compression
Removing Double-Logging with Passive Data Persistence in LSM-tree based Relational Databases
Solidifying the State of SSDs
Improving the Reliability of Next Generation SSDs using WOM-v Codes
Shehbaz Jaffer, University of Toronto, Google; Kaveh Mahdaviani and Bianca Schroeder, University of Toronto
Guarded Erase: Extending SSD Lifetimes by Protecting Weak Wordlines
Hardware/Software Co-Programmable Framework for Computational SSDs to Accelerate Deep Learning Service
on Large-Scale Graphs
Operational Characteristics of SSDs in Enterprise Storage Systems: A Large-Scale Field Study
Statins infancas and Kanch mandaniani, University of Toronto, Thii Emaini, NetApp, Dianca Schroeder, University of Toronto

Wednesday, February 23 Distant Memories of Efficient Transactions

Distant Memories of Efficient Transactions
Hydra: Resilient and Highly Available Remote Memory
MT ² : Memory Bandwidth Regulation on Hybrid NVM/DRAM Platforms
Aurogon: Taming Aborts in All Phases for Distributed In-Memory Transactions
The Five Ws of Deduplication
DedupSearch: Two-Phase Deduplication Aware Keyword Search 233 Nadav Elias, Technion - Israel Institute of Technology; Philip Shilane, Dell Technologies; Sarai Sheinvald, ORT Braude College of Engineering; Gala Yadgar, Technion - Israel Institute of Technology
DeepSketch: A New Machine Learning-Based Reference Search Technique for Post-Deduplication Delta
Compression
The what, The from, and The to: The Migration Games in Deduplicated Systems
DUPEFS: Leaking Data Over the Network With Filesystem Deduplication Side Channels
Meet the 2022 File System Model-Year Lineup
FusionFS: Fusing I/O Operations using CISC _{Ops} in Firmware File Systems
InfiniFS: An Efficient Metadata Service for Large-Scale Distributed Filesystems
ScaleXFS: Getting scalability of XFS back on the ring
exF2FS: Transaction Support in Log-Structured Filesystem
Thursday, February 24
Keys to the Graph Kingdom
A Log-Structured Merge Tree-aware Message Authentication Scheme for Persistent Key-Value Stores
Practicably Boosting the Processing Performance of BFS-like Algorithms on Semi-External Graph System via I/O-Efficient Graph Ordering
DEPART: Replica Decoupling for Distributed Key-Value Storage

Keeping the Fast in FAST
PAIO: General, Portable I/O Optimizations With Minor Application Modifications
Separating Data via Block Invalidation Time Inference for Write Amplification Reduction in Log-Structured
Storage
CacheSifter: Sifting Cache Files for Boosted Mobile Performance and Lifetime
Yu Liang, Department of Computer Science, City University of Hong Kong and School of Cyber Science and Technology,
Zhejiang University; Riwei Pan, Tianyu Ren, and Yufei Cui, Department of Computer Science, City University of Hong Kong;
Rachata Ausavarungnirun, TGGS, King Mongkut's University of Technology North Bangkok; Xianzhang Chen, College of
Computer Science, Chongqing University; Changlong Li, School of Computer Science and Technology, East China Normal
University; Tei-Wei Kuo, Department of Computer Science, City University of Hong Kong, Department of Computer Science
and Information Engineering, National Taiwan University, and NTU High Performance and Scientific Computing Center,
National Taiwan University; Chun Jason Xue, Department of Computer Science, City University of Hong Kong