



Microsoft Research

Faculty Summit

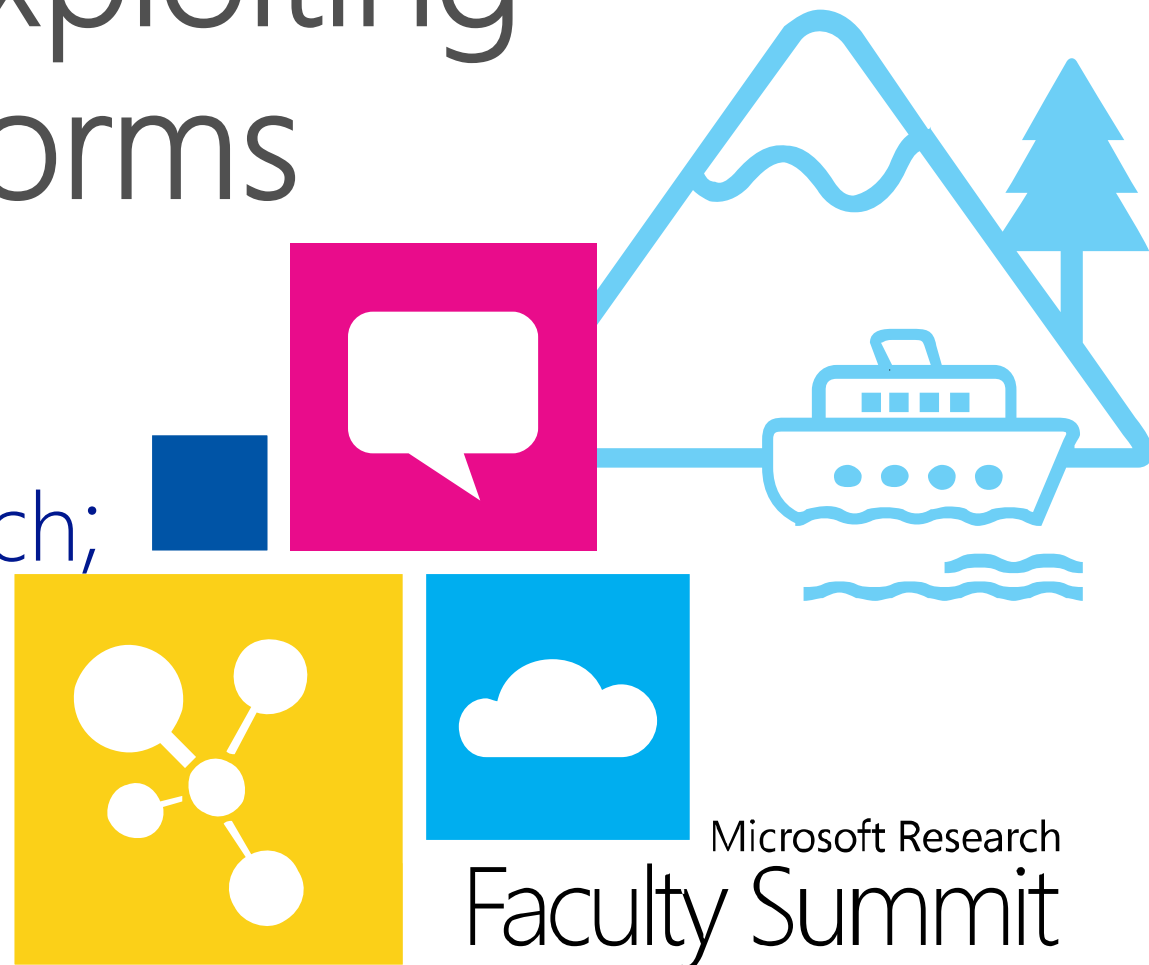
2013



Database Systems Exploiting New Hardware Platforms

Moderator:

David Lomet, Microsoft Research;



Overview

Fully exploiting new hardware technologies has become increasingly important for high-performance

For example: “main memory resident data” instead of “disk resident data entirely in the main memory cache” can result in **much** better performance.

This new hardware setting calls for a revolution in the access methods, concurrency control, and recovery.



Dramatic Technology Changes

Flash and Disk

Cost: Flash/byte ~ 10X Disk/byte

I/Os per second: Flash 200X Disk seeks/sec

Both moving to “no update in place” with costly writes

Terabyte main memories

Three levels of cache

L1 ~100X faster than main memory

Multi-core CPUs

Single core performance ~ 2-3 GHz

Commodity servers with 64 cores



This session explores new approaches for exploiting the new hardware platforms

- the problems encountered
- the performance that they produce
- the prospects going forward



“Panelists”: (alphabetical)

- Paul Larson, Microsoft Research;
- Justin Levandoski , Microsoft Research;
- Thomas Neumann, Technische Universität München;
- Jignesh Patel, University of Wisconsin, Madison



