Breakout 3A

Novel Storage Devices for the IO Stack

Session Coordinators: Rob Ross and Lee Ward

Session Scribes: Tina Macaluso

Session Presenter: Rob Ross

Session Writeup:

Current High Level Topics

- *New storage devices*
  - *MEMS*
  - *MRAM, spin-torque, …*
  - *FLASH*
- *Integrating these devices into hierarchy*
  - *Hybrids*
- *Metadata architectures enabled by these devices*

Areas that need to have more research focus

- *New storage devices (e.g. MEMS, MRAM, FLASH, holographic)*
- *Integrating new devices into hierarchy*
- *Small (~cache line size) requests in file address space*
- *Metadata operations (low-latency, high-rate)*
- *Combining traditional and novel devices for storing structured data for performance*
- *Impedance matching at low-level device layer*
- *Power management*
- *Interconnects*
- *Modeling RAS characteristics*
- *Improving RAS characteristics*

Rough Consensus

- *Integrating new devices into hierarchy (54/13) (continuous)*
- *Metadata operations (low-latency, high-rate) (45/13) (short, long)*
- *Combining traditional and novel devices for storing structured data for performance (35/11) (short)*
- *Improving RAS characteristics (23/11) (long)*
- *Small (~cache line size) requests in file addr. space (26/5) (short)*
  - *Not so much interest from government*