

Welcome to the HECIWG Sponsored FSIO 2007 Workshop

08/6/067
Arlington VA

Gary Grider of Los Alamos
for the HEC

Safety and Security first!

Know your exits!
Be safe!

Do not tell us anything that cant be
globally shared!

HEC FSIO 2005

- We concentrated on listing, categorizing, and prioritizing HEC I/O and File Systems R&D needs.
- The '05 workshop outcome can be found at http://www.nitrd.gov/subcommittee/hec/workshop/20050816_storage/ and the workshop document can be found at <http://public.lanl.gov/ggrider/HEC-IWG-FS-IO-Workshop-Document-05.pdf>
- The categories of needed research were:
 - Metadata
 - Measurement and Understanding
 - QoS
 - Security
 - Next generation I/O architectures
 - File Systems related communications protocols
 - Management and RAS
 - Archive where it interfaces to file systems
- Additionally, we also discussed other general needs researchers in this area have. These can be summarized as:
 - Direction (provided by the output of the '05 workshop)
 - Funding for research
 - Data from HEC sites to study
 - RAS/failure, usage, performance/traces, benchmarks/pseudo applications)
 - Access to large compute/storage resources for research purposes

HEC FSIO 2006

- The R&D direction was given by the HECIWG FSIO 2005 materials and subsequent NSF call for R&D
- Accomplishments
 - \$11M+ NSF HECURA I/O and File Systems research awards
 - 23 projects
 - SciDAC2 I/O and File Systems related research awards
 - Simulation resources
 - 2007 Incite - Now in its fourth year, the Innovative and Novel Computational Impact on Theory and Experiment (INCITE) program using ORNL/LBNL/PNNL/ANL world class resources
 - NSF infrastructure related funding
 - Other needs
 - LANL failure data release
 - Others have begun to consider data release
 - Progress on relevant standards
 - HEC enhancements to the POSIX I/O API and pNFS.
 - Began to look at how HEC could help Universities with storage, file system, and I/O programs

HEC FSIO Workshop 2007 Goals

- Community building and Technical Exchange
- Showcase
 - \$11M+ NSF HECURA FSIO
 - Two SciDAC projects FSIO work
 - Use of Incite resources for FSIO work
 - Use of virtual testbeds to assist in providing resources
- Review
 - Standards - HEC enhancements to the POSIX I/O API and pNFS.
- Update
 - Data releases
 - First steps to getting HEC FSIO community more involved with universities working in and teaching FSIO
- New Starts
 - NSF CPA – 5 new projects for HEC FSIO
 - DOD NSA ACS program
- Collect input
 - Technical gaps
 - Other gaps (data, testbeds, workshops, education)
 - Tell us what you really need !
- What do you think of the HEC FSIO effort
 - Tell us what you really think !
- FY08 – a transition year for HEC FSIO

What are NOT the goals of this workshop?

- This is NOT an
 - archiving workshop,
 - nor is it a high level data management workshop,
 - nor is it a Grid workshop,
 - however it will touch on those topics as they relate to file systems and middleware.

These areas have their own following
- This is NOT about marketing products or solutions
- This is NOT about marketing your institutions research capabilities
- This is NOT a bragging session to see who has the most bytes or bytes/sec
- This is NOT about current product needs, what you would like to see a product implement, etc.
- You can have those discussions in the bar

Welcome the new NSF CPA FSIO Projects

A High Throughput Massive I/O Storage Hierarchy for PETA-scale High-end
Architectures

Gao, Guang R University of Delaware

High Throughput I/O for Large Scale Data Repositories
Tosun, Ali S University of Texas at San Antonio

BUD: A Buffer-Disk Architecture for Energy Conservation in Parallel Disk Systems
Qin, Xiao New Mexico Institute of Mining and Technology

Object-Based Caching for MPI-IO
Dickens, Phillip M University of Maine

Collaborative Research: Algorithms Design and Systems Implementation to Improve
Buffer Management for Fast I/O Data Accesses
Zhang, Xiaodong Ohio State University Research Foundation
Jiang, Song Wayne State University

Some Info on the Web

HEC FSIO

[Home](#) [News & Events](#) [Workshops](#) [Research & Education](#) [Documents](#) [Research Data & Codes](#)

- <http://institute.lanl.gov/hec-fsio/>
 - What is HEC FSIO
 - Upcoming events
 - Past and upcoming workshop info
 - Research and Education projects
 - All HECURA, CPA, SciDAC FSIO projects etc.
 - Pre-pub information available under access control to HECIWG
 - All workshop documents, presentations etc.
 - Including hopefully timely workshop reports annually
 - Links to released failure, usage, event, trace data and public domain utilities and benchmarks

FY08 A Transition Year for HEC FSIO

- Goal – to better coordinate HEC FSIO R&D to address HEC issues to make America more Competitive
 - Track gaps
 - Keep research pipeline full without duplicates
 - Track research outcomes into products HEC sites can buy
- So, it is not just coordinating research, it is coordinating the entire pipeline
 - gap -> research -> research outcome -> product development -> solution for HEC
- FY08, we will have research projects ending with research outcome, we must expand the coordination to track progress in moving towards solutions we can buy
- Oh Joy – more things to track/coordinate
- We will produce
 - Technical report which will be released shortly after finished
 - New glossy report for agencies (next slide)

Early Thank You

- NSF – Almadena Chtchelkanova
 - Housing this event
 - Incredible support
- DOE Office of Science – Fred Johnson
 - Sponsoring this event - lunch and snacks
 - Incredible support
- DOE NNSA – Thuc Hoang and Bob Meisner
 - Incredible support
 - Tina Macaluso – documentation management
- All the other HECIWG
- All the facilitators
- All the speakers
- LANL protocol office and administrative assistance
- To all of you that took time out to come to this event

PLEASE bring your presentations to Wynona before you present!

Give Wynona ideas about a process for how to get HEC site info/track productization needs, research gaps, etc.
for day 3 panel

PDSI meeting day change Monday->Tuesday 7-9PM

Sign up with Wynona for private pre-publication information
briefing room at the hotel is available 7-10 Mon and Tues

Show the Agenda