

*September 17-18, 2008 in San Francisco, California*

**Risk Management Techniques and Practice Workshop**  
*for High-Performance Computing Centers*

## Track 2, Session 3 Real Life Risk Experience

**Acceptance Testing and Integration: "How to get the system installed and stay out of jail."**

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If you are installing a leading-edge system it is unlikely that you've had any chance to "road test" the final product before this point, and there are bound to be some engineering issues that have arisen during the design and development phase. This session will address how to make sure that you get something you can accept while keeping in mind the requirements of the contract and the statement of work. How can you effectively test the System that is being built before its on your floor and the vendor is asking you to pay an invoice? What tests/benchmarks can you effectively run at the factory before delivery. What tests/benchmarks can be run on a small Phase 1 system? What benchmarks have to wait for the fully integrated system at your site? How do you develop benchmarks that are meaningful for your expected workload? What happens when proposed system software or hardware does not materialize or does not meet the requirements in the statement of work? We will discuss real-life experiences with what to do with conflicts between reality and the contract requirements as we try to get a system installed and running.

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### Session 3 Participants

Draney	Brent	NERSC	LEAD
Skouson	Gary	PNNL	LEAD
Tinnin	Douglas	ANL	NOTES

Bettge	Thomas	NCAR	Blaine	Brad	HP
Butler	Tina	NERSC	Coghlan	Susan	ANL
Craw	James	NERSC	Cupps	Kimberly	LLNL
Embry	Bryan	DOD	Featherman	David	BAH
Kasdof	James	PSC	Kendall	Ricky	ORNL
Kramer	William	NERSC	Mack	Gary	NERSC
McMahon	Charlie	LSU	Rheinheimer	Randal	LANL
Scherr	Stephen	DOD	Showerman	Mike	NCSA
Stelljes	Kevin	Cray			

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# Acceptance Test and Integration Risks

- What are the top risks in your area?
  - Scalability – OS, Hardware, Applications, etc.
  - Vendor responsibilities of non-vendor supplied pieces during acceptance
  - Integration of multiply vendor pieces at scale
  - Schedule delay by customer of system delivery
  - Vendor support during integration at scale is highly variable
  - Overly aggressive acceptance schedule
  - Replacement parts unavailable
  - Acceptance test are not discovering issues designed to find
  - Site infrastructure and interfacing of the systems
  - Operating at ASHRAE standards
  - Small problems may hide large problems

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# Successful Mitigations Strategies

- Hire very talented people
- Use open source software
- Procure early test system
- Build system as large as possible at factory and pre-test
- Use a phased plan for installation
- Focus on running tests at the largest scale possible to detect problems
- Divide scaling problems among many people for better focus on the issue
- Acceptance testing of the system
- Use a wide variety of testing software