

Energy Efficient High Performance Computing Working Group
12/13/11 Meeting Report

INTRODUCTION

The EE HPC WG held a meeting on 12/13/11. This Working Group is composed of members representing major Federal departments and independent agencies, private sector representatives, and members of the academic community. More information can be found at the working group's website, <http://eehpcwg.lbl.gov>.

Documents from the group can be found at

<https://docs.google.com/leaf?id=0BzyTVVVRdMKpNwVjNTI5YTEtMTIIZi00YTA5LTikMTYtZmY3ZDlyZjJjZmMy&hl=en>.

NEXT MEETING February 14th, 9:00-10:00AM Pacific Time

NEXT Webinar January 10, 10:00-11:00AM Pacific Time

Introductions and Announcements: Dale Sartor, LBNL

- EE HPC WG Membership is now at 245 members with ~45 signed up during SC11. Approximately half of the members are from DOE labs and a few from other US governmental agencies. Another third are vendors and the rest are from academic or international institutions.

Conferences Sub-group Update: Marriann Silveira, LLNL and Anna Maria Bailey, LLNL

- **SC'11 and the Energy Efficiency HPC Working Group.** The EE HPC WG organized four technical sessions and all of them were well presented and attended. Energy efficiency was a hot topic at SC11, with 27 Technical Program sessions explicitly focused on energy efficiency.
- **Future Conferences (more details at <http://eehpcwg.lbl.gov/events-and-links>)**
 - The Green Grid Technical Forum (members only). Mar 6-7. San Jose, California
 - e-Energy 2012 : Energy-Efficient Computing & Networking. May 9. Spain
 - High Performance Power Aware Computing. May 21. Shanghai, China
 - International Green Computing Conference. June 5-8. San Jose, California
 - International Supercomputing Conference June 17-21. Hamburg, Germany
 - GovEnergy. August 19-22. St. Louis, MO.
- **ACTION REQUIRED. See if we can have an HPC session at GovEnergy.**

Infrastructure Sub-Group Update: William Tschudi, LBNL and Dave Martinez. SNL

- **Liquid cooling.** There were (at least) 8 presentations on liquid cooling at SC11; three exhibitor forums, a poster and four presentations by the EE HPC WG. The EE HPC WG liquid cooling temperature guidelines were well received and the paper/presentations got a lot of people thinking about it. Dave Martinez reported on his recollection of questions from the audience and off-line conversations.
- **ACTION REQUIRED. Develop Liquid Cooling Temperature Q&A to help drive adoption.**
- **Shifting IT load.** This team is looking at metrics other than PUE to account for loads that shift between IT and Infrastructure (e.g., certain cooling systems built into computers). Michael Patterson drafted a proposal for a metric which is under review by the team. We intend to work with The Green Grid on this.
- **Dashboards.** Several members expressed an interest in working on dashboards, so we sent out a small survey to gauge more general interest. There was an overwhelming positive response that the EE HPC WG should consider developing and documenting best practices relative to energy performance dashboards. Only a few DOE labs have energy performance dashboards (LBNL, LLNL and NREL - identified to date).

Compute System Sub-group Update: *Craig Steffen, NCSA and Natalie Bates, LBNL*

- **HPC System Metrics.** Craig gave an update on the Power Measurement Methodology effort. Natalie talked about transitioning the HPC System Metrics team to a focus on defining a workload that stresses the memory sub-system.
- **System Power Monitoring and Management.** Natalie announced the kick-off a new team; one focused on system power monitoring and management.

Webinar Series: *Madhusadan Iyengar, IBM*

- Madhusudan Iyengar is a Senior Engineer and Master Inventor at the IBM Poughkeepsie Advanced Thermal Laboratory. He presented an interesting and lively webinar on “Dual Enclosure Liquid Cooling (DELC) - Chiller-less Data Centers with Liquid Cooled Servers To Enable Significant Data Center Energy Savings.”

PARTICIPANTS

Name	Organization
Anna Maria Bailey	LLNL
Natalie Bates	LBNL
Amber Boehnlein	SLAC
Anita Cocilova	LLNL
Henry Coles	LBNL
Nicolas Dubé	HP
Steve Harrington	Flometrics

Adam Lewis	Univ. of Louisiana
Josip Loncaric	LANL
Dave Martinez	SNL
Scott Milliken	ORNL
Dale Sartor	LBNL
Marriann Silveira	LLNL
Craig Steffen	NCSA
Bill Tschudi	LBNL
Ralph Wescott	PNNL

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