EARTH SIMULATOR RAPID RESPONSE

James Corones

Krell Institute

Presentation to the ASCAC

Oct. 17, 2002

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- At the May 2, 2002 ASCAC Meeting in Light of the Earth Simulator Success:
  - The facilities subcommittee report, which was to be presented, was proposed as interim; one charge was to be readdressed
  - Dr. Orbach asked for a quick response to the Earth Simulator issue
  - The facilities subcommittee was asked to organize a meeting on the Earth Simulator

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Earth Simulator Rapid Response Meeting
May 15-16, 2002
Hilton Crystal City

Agenda

Wednesday, May 15

9:00-9:30 **Welcome and Introduction**
Ed Oliver, DOE/OASCR

9:30-10:15 **Brief synopsis of the Earth Simulator Project**
Jim Hack, NCAR

10:15-10:30 Break

10:30-12:00 **Panel: Agency Perspectives**
George Cotter, DoD
Dolores Schaffer, STA (discussing DoD/Darpa)
Cray Henry, DoD/HPCMO
George Strawn, NSF

12:00-1:15 Working Lunch

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Earth Simulator Rapid Response Meeting
(cont.)

1:15-3:15 **Panel: DOE Science Initiative Needs Discussion**

Dave Bader, BER-Climate
Dale Koelling, BES-Nanoscience
David Thomassen, BER-Climate
Arnold Kritz, FES-Fusion

3:15-3:30 Break

3:30-5:30 **Panel: Technology Assessment and Response Options**

Buddy Bland, ORNL
Bill Feiereisen, LANL
Terri Quinn, LLNL
Rick Stevens, ANL
Bill Camp, SNL
Jeff Nicholas, PNNL
Horst Simon, LBNL
Thomas Zacharia, ORNL

Thursday, May 16

9:00-10:30 **Breakout Sessions & Informal Discussion**
10:30-11:00 Break
11:00-12:00 **Summary Plenary Discussion**

Adjourn

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Attendee List

Dave Bader, DOE
Charlie Bender, PNL
Buddy Bland, ORNL
William Camp, SNL
Jim Corones, Krell
George Cotter, DoD
Michael Crisp, DOE
Bill Feiereisen, LANL
Dave Goodwin, DOE
Jim Hack, NCAR
Cray Henry, HPCMP
Dan Hitchcock, DOE
Cliff Jacobs, NSF
Fred Johnson, DOE
Gary Johnson, DOE
Dale Koelling, DOE
Norm Kreisman, DOE
Arnold Kritz, DOE
Sander Lee, DOE
Tom Mackin, OSTP
Reinhold Mann, PNL
Paul Messina, ANL
Jeffrey Nichols, PNL
Ed Oliver, DOE
Walt Polansky, DOE
Terri Quinn, LLNL
Chuck Romine, DOE
Ned Sauthoff, PPPL
Mary Ann Scott, DOE
Delores Shaffer, DoD
Horst Simon, LBL
Rick Stevens, ANL
George Strawn, NSF
David Thomassen, DOE
John van Rosendale, DOE
Thomas Zacharia, ORNL

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More Information on the Meeting, including some talks and the Report on the Meeting, can be found at

http://www.ultrasim.info/esrr_meeting/index.html

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- Some Conclusions in the Report
  - The Earth Simulator is a real general purpose machine
  - It is focused on a class of problems
  - It provides significant scientific advantage to its users

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- How the Challenge is Viewed
  - The core issue is leadership in computational science
  - Numerous areas of science and engineering are positioned to take advantage of ES class machines
  - Workforce issues are a critical part of the response

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- The DOE Environment
  - ASCR is well positioned to lead a national response
    - Previous and on-going planning
    - SciDAC experience
    - Experience working with vendors
    - Serious underfunding of computational science in ASCR (both absolute and relative metrics)
    - Well positioned in the interagency community

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- Technology Readiness
  - There are no technology barriers to forming a national response
  - Close collaboration between government and vendors necessary

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- Shape of Response
  - The ES is a challenge to our leadership in computational science, requiring a science driven response
  - Short, intermediate and long term components are needed
    - advanced architecture development; computational science and enabling technology research; and focused technology deployment in support of the DOE mission applications

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DOE Laboratories and domestic computer vendors have a long history of successful collaborations in high end computing. Both parties are ready and willing to respond to the Earth Simulator challenge. The mandate of ASCR is computational science in support of DOE missions. With adequate resources, DOE can compete in, win, and dominate this space.

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For further information:

http:www.ultrasim.info/esrr_meeting/index.html