BES/NERSC Requirements Gathering Workshop

February 9 & 10, 2010

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Topics for Discussion

- Current approaches to NERSC requirements gathering

- Benefits of SC/HQ-centric requirements gathering for NERSC resources in the context of Programmatic mission needs

- NERSC requirements gathering workshop schedule

- Goal and Outcome of this Workshop

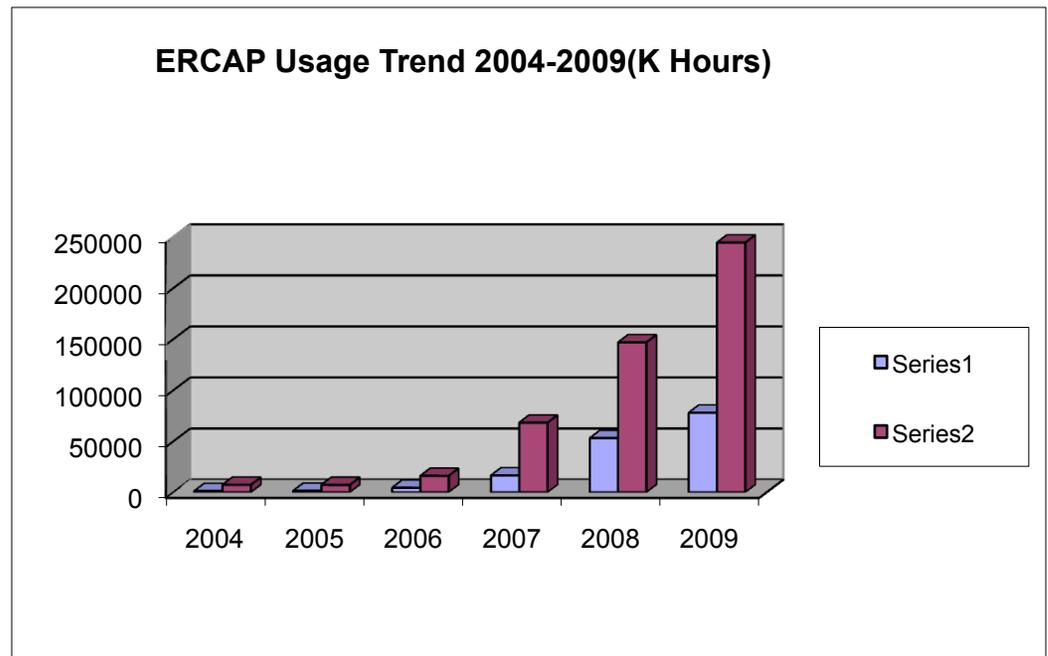- An example outcome from BER/NERSC Workshop

BES Usage Trend

In K Hours

FY	BES Usage	SC Usage
04	1329	7497
05	1552	7385
06	4521	16248
07	16590	68336
08	53194*	146935
09	78011	244697

ERCAP Usage Trend 2004-2009(K Hours)

Series1
Series2

2004 2005 2006 2007 2008 2009

* BES became the largest SC User.

Cray XT-4 (Franklin Equivalent Hours)

Current Tools for Requirements Gathering for NERSC

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Document or Action	Owner/Perspective	Frequency
DOE Greenbook – Needs and Directions in High-Performance Computing for the Office of Science, June 2005	NERSC User Group (NUG)/NERSC users	Once every ? - five years
NERSC "Visualization Greenbook," October 2002	NUG/NERSC users	Not set
Science-Driven Computing: NERSC's Plan for 2006-2010, May 2005	LBNL NERSC/LBNL NERSC	Once every five years

NUG Executive Board (NUGEX)*

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* http://www.nersc.gov/about/NUG/nugex_members.php

Assessment of Current Tools

- These documents are very informative.
- They represent either NERSC's User Group's perspective, or LBNL/NERSC Team's perspective.
- *Science-Driven Computing: NERSC's Plan* is the closest to capture SC's needs, and is published once every 5 years.
- Science needs are changing rapidly, and the five-year cycle does not capture the changing needs very effectively.
- We also need more computation-oriented data for NERSC needs than those currently collected using the existing mechanisms.

Benefits of Conducting NERSC Requirements Workshops in Three-Year Cycle

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- SC Program Offices will have direct input on the requirements and can provide forecasts of needs aligned with mission priorities.
- Requirements gathering workshops in the DC area in the three-year cycle can capture rapidly changing Program-specific needs for NERSC resources better.
- We can document SC programmatic needs for NERSC resources that may not be captured in the five-year cycle planning tools (in 5 years; beyond 5 years).
- Scientists can get direct feedback on Program mission priorities.
- NERSC Staff can help quantify scientists' needs interactively.
- The new workshops will augment the existing, user-oriented requirements documents.
- We can leverage the successful structure and approach used for the ESnet requirements workshops.

Program/NERSC Requirements Gathering Workshops

- Program's active involvement in pre-workshop planning, conducting the workshop, and writing the final report is critical -- Own the Workshop
- Timeframe and location: Two – three workshops/year. BER May 2009; HEP November 2009; BES February 2010; FES summer 2010; in the DC area.
- Approximately 15 - 20 BES scientists are invited.
- ESnet has conducted effective Program/ESnet Requirements Workshops, and a format similar to theirs can be used.
- NERSC will provide Facilitators (NERSC staff) who: have the knowledge of end products; an translate Program's needs in quantitative ways; can help Scientists articulate and quantify their needs; and help Program and NERSC Management forecast Program's future needs.
- We would like to have all Program Office's program areas covered –> participation from each of your divisions
- Program Office representatives will work very closely with NERSC Program Manager and Workshop Facilitators.
- NERSC will prepare templates ("Business Cases") for information gathering and report writing for participants' convenience.
- Prior to the workshop, participants will develop business cases, similar to those used in ESnet requirements workshops, to: (1) capture information and (2) use them as a backbone of the workshop report.

Goal/Outcome of This Workshop

- The mission of NERSC is to accelerate the pace of scientific discovery by providing supercomputing capabilities, applicable software and middleware, expert consulting services, data analysis, visualization, and storage, and communications services for research sponsored by SC.

- The workshop's goal is to characterize BES production computing requirements over the next 5-10 years at NERSC..

- Requirements collected at the workshop will help NERSC plan for future systems and services, and will help ensure that NERSC continues to provide world-class support for BES scientific discovery. The tangible outcome of the workshop will be a report that includes both the HPC requirements and a supporting narrative.

A BER Requirement and NERSC Follow-on Action

- We held BER/NERSC Requirements Workshop in May.

- BER scientists told us that they wished to be able to reserve NERSC resources recurrently at specific Interval.

- NERSC Response: New Service for Franklin Dedicated Time Reservation:

  – NERSC is testing a new service which will allow users who need access to a large number of nodes to make a reservation for a certain date, time and duration.

  – http://www.nersc.gov/nusers/systems/franklin/running_jobs/reservation.php

- We Listen to you!

Contact Information

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