Users Evaluate NERSC Systems and Support

Francesca Verdier* and Jonathan Carter, NERSC,
Lawrence Berkeley National Laboratory

Summary

The results from the 2005 NERSC user survey provide feedback about every aspect of NERSC's operation and show generally high satisfaction with NERSC's systems and support. Several positive changes were made in response to comments in the 2004 survey.

Every year the National Energy Research Scientific Computing Center (NERSC) conducts a survey of its users. The survey responses provide feedback about every aspect of NERSC's operation, help management and staff judge the quality of their services, give DOE information on how well NERSC is doing, and point to areas where NERSC can improve. The survey is one of the ways NERSC stays in close contact with its diverse user community.

In 2005 there were 201 users who responded to the User Survey. The respondents represent all six DOE Science Offices and a variety of home institutions. Users rated NERSC on a 7-point satisfaction scale. Some areas were also rated on a 3-point importance scale or a 3-point usefulness scale.

Overall satisfaction with NERSC received a score of 6.20. The satisfaction scores from this year's survey ranged from a high of 6.73 (very satisfied) to a low of 3.95 (neutral), with the large majority in the higher ranges. Areas with the highest user satisfaction include account support services, the reliability and uptime of the HPSS mass storage system, and HPC consulting. The largest increases in satisfaction over the 2004 survey include the NERSC CVS server, the Seaborg batch queue structure, PDSF compilers, Seaborg uptime, available computing hardware and network connectivity.

Areas with the lower user satisfaction include batch wait times on both Seaborg and Jacquard, Seaborg's queue structure, PDSF disk stability, and Jacquard performance and debugging tools. Only three areas were rated significantly lower in 2005 than 2004: PDSF overall satisfaction and uptime, and the amount of time taken to resolve consulting issues. The introduction of three major systems in the last year combined with a reduction in consulting staff explained the latter.

Eighty-two users answered the question "What does NERSC do well?" Forty-seven respondents stated that NERSC gives them access to powerful computing resources without which they could not do their science; 32 mentioned excellent support services and NERSC's responsive staff; 30 pointed to very reliable and well managed hardware; and 11 said "Everything." Some representative comments are:

> *NERSC provides superior hardware computing capabilities, and professional user support and consulting. These two areas [are] where I see NERSC core*

* 510-486-7193, FVerdier@lbl.gov

strengths, here NERSC offers resources that are not easily matched by any local cluster or computer farm set up.

There is a distinct professionalism in the way NERSC conducts business. It should be a model for other centers.

NERSC … combines … state of the art HW/SW with excellent first class consulting/collaboration.

Every year NERSC institutes changes based on the previous year's survey. In 2005 NERSC took a number of actions in response to suggestions from the 2004 user survey, including the following:

1. **2004 user comments:** 37 users asked us to change the job scheduling policies on Seaborg, 25 requesting more support for midrange jobs.
   NERSC response: In early 2005 NERSC implemented two changes to the queuing policies on Seaborg:
   - NERSC reduced the scheduling distance between midrange and large jobs.
   - NERSC gave all premium jobs a higher scheduling priority than regular priority large-node jobs. (Prior to this change, the scheduling priority for premium midrange jobs was lower than that for regular priority large-node jobs.)

   As a result, user satisfaction with Seaborg's batch queue structure increased by 0.39 points on the 2005 survey.

2. **2004 user comments:** 25 users requested additional computing resources. In addition, another set of 25 users requested more support for midrange jobs.
   NERSC response: In August 2005 NERSC deployed Jacquard, a Linux cluster with 640 2.2 GHz Opteron CPUs available for computations. This was followed in January 2006 with Bassi, an IBM Power5 system with 888 processors available for computations.

   The result was user satisfaction with NERSC's available computing hardware increased by 0.24 points on the 2005 survey.

3. **2004 user comment:** "Faster network connectivity to the outside world. I realize that this may well be out of your hands, but it is a minor impediment to our daily usage."
   NERSC response: During 2005 NERSC upgraded its network infrastructure to 10 gigabits per second. User satisfaction with network connectivity increased by 0.18 points on the 2005 survey.

4. **2004 user comment:** "I want ImageMagick on Seaborg. Then I could make movies there, and that would complete my viz needs."
   NERSC response: NERSC installed ImageMagick on Seaborg; it is also available on Jacquard and DaVinci.

The complete survey results can be found at https://www.nersc.gov/news/survey/2005/.

For further information on this subject contact:
Barbara Helland, Program Manager
Mathematical, Information, and Computational Sciences Division
Office of Advanced Scientific Computing Research
Phone: 301-903-3127
Barbara.Helland@science.doe.gov