2013 NAS User Survey Results

Turning Feedback into Action to Improve Performance

In 2013, 279 NAS users from all NASA mission directorates and from university and industry partners participated in our third NAS User Survey, which addressed 14 NAS service areas. As with our previous surveys in 2009 and 2011, your valuable feedback has helped us gain insight into your requirements and concerns and has guided improvements to our services and capability.

This report provides a summary of the 2013 survey results and information on related activities undertaken over the last year to improve performance in several key areas: job management and queuing, file systems and storage, data transfer to and from the NAS facility, and software licenses.

Comparison with the 2011 User Survey

Based on lessons learned from the 2011 survey, we enhanced the 2013 survey design to help us gain more insight into the nature of users' concerns. Changes included:

- Improving the service area list to resolve some ambiguities and terminology issues, while maintaining the overall structure (for example, dividing the "Networking" category into two more specific categories: "Data Transfer within NAS" and "Data Transfer to/from NAS")
- Adding more specific questions within each service area for clarification and to address specific issues and metrics
- Providing more opportunities for users to submit qualitative comments

The score for Overall Satisfaction, 4.26 out of 5 (with 5 being Excellent), is unchanged from 2011. Most comparable scores improved slightly from the 2011 survey, as shown in the table in the next section. Relative rankings of the service areas were mostly unchanged, and qualitative comments support the relative ranking. Finally, our new approach to the questions provided some new insights.

Survey Highlights

Responses to the 2013 survey were reasonably representative of the work distribution across the mission directorates. SMD and ARMD provided the highest and second highest number of responses, respectively. Highlights include:

- Overall Satisfaction was rated Very Good
- The Control Room and Compute Power categories received the highest scores
- The Training category showed the most improvement

The most requested future requirement is increased compute capability, followed by increased storage.

The following table shows the comparable scores from the past three surveys.

2013 Service Area	2013 Score	2011 Score	2009 Score	Comparable 2009 and 2011 Service Areas
High Performance Computing	4.20	4.51	4.33	Computing Systems
		4.17	4.01	Software Environment
Short Term Storage (nobackup)	4.04	4.11	4.07	Mass Storage
Long Term Storage (Archive)	4.14	4.11	4.07	Mass Storage
Data Transfer within NAS	4.33	4.02	3.81	Networking
Data Transfer to/from NAS	3.69	4.02	3.81	Networking
Help Desk (Control Room)	4.53	4.45	4.31	Help Line
Account Management Services	4.11	4.13	3.95	Account Management
Application Performance and User Productivity Services	4.14	4.47	4.25	Consulting Services
		3.96	3.78	Appl Optimization
Visualization	3.68	3.72	3.55	Vis/Data Analysis
Data Analysis	3.83	3.72	3.55	Vis/Data Analysis
HECC Website & Knowledge Base	3.84	3.84	3.49	New HECC Website
		3.64	3.42	System Documentation
Training	3.81	3.34	3.32	Training
Communicating with Users	4.27	3.98	3.83	User Telecons
System Upgrades	4.07			None
Overall Satisfaction	**4.26**	**4.26**	**4.04**	**Overall Satisfaction**

In the table, the average for 32 questions from all responses is shown for the 14 services areas as well as Overall Satisfaction. The scores 1 through 5 correspond to Poor, Fair, Good, Very Good, and Excellent – our Overall Satisfaction score of 4.26 corresponds to Very Good. Nine of the service areas scored at least Very Good and the other five service areas scored Good.

Actions

Based on your feedback, we have taken numerous steps to improve our offerings in several categories, including:

Job Management and Queuing

To improve PBS efficiency, we deployed a new version of the PBSPro batch scheduler, doubling its performance and allowing more jobs to move into the queue. We also implemented Dynamic PBSPro queue management, which increased system utilization and reduced job wait times. Finally, Pleiades was augmented with new Ivy Bridge racks to increase processing power, allowing more jobs to be processed through Pleiades queues.

File Systems and Storage

Multiple improvements and enhancements to the InfiniBand network fabric improved the performance of the Lustre file systems, and a new Lustre file system was deployed to assist users in running more data-intensive applications. We also deployed a new NFS file system to enable users with small I/O files to make more effective use of the system. The new Lou archival system, with the parallel Data Migration Facility, greatly improved data transfer speeds.

Data Transfer

We further improved data transfer rates for remote users by identifying and resolving bottlenecks, providing up to a 63-fold improvement. Several of our user training webinars focused on ways to improve data transfer performance by using tools such as SUP and Shift. We continue to implement ongoing enhancements to the Shift tool.

Licenses (IDL, Matlab)

By tracking and monitoring usage of Matlab licenses and toolboxes, we determined baseline usage, which indicated the need for more licenses. As a result, we acquired eight additional Matlab licenses and one additional Statistics Toolbox license. In addition, we improved our IDL license usage guidelines, including online instructions that describe how to use a single IDL license to run multiple IDL sessions. We helped some users switch to using GNU Data Language in place of IDL, and we are looking at options for increasing the number of IDL licenses.

Thank you for participating in the 2013 NAS User Survey. Your input is always important to us and we encourage you to contact us any time by phone or email and to attend our weekly user telecons.