XSEDE 2013 User Satisfaction Survey

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Version 1.0

Table of Contents

A. Document History

Relevant Sections	Version	Date	Changes	Author
Entire Document	0.9	05/25/2013	Baseline document for project team review	J. Wernert
Section C.1	0.9.1	06/19/2013	Executive Summary added	R. Whitten
Entire Document	1.0	06/28/2013	Applied official XSEDE document formatting in advance of SMT review	J. Wernert

B. Document Scope

This document summarizes the responses to the 2013 XSEDE User Satisfaction Survey planned in late 2012/early 2013 and conducted with XSEDE users in February-March, 2013. This was the second annual survey of XSEDE users, and while it borrowed from the methodology and types of questions used in the 2012 User Survey, the 2013 iteration was far briefer to allow completion within 5-10 minutes, depending how, or if, respondents choose to answer the open-ended questions. Further, this survey was designed as a tool to gauge broad, overall satisfaction with XSEDE activities and services -- a basic "report card," if you will. Other surveys and feedback mechanisms are being developed to gather more granular, resource- and service-specific data.

As with any survey instrument or resulting report, one should exercise caution in reading too much into specific results, either positive or negative. The authors made every effort to accurately summarize and convey the survey results they received so as to not introduce any bias. Readers should pay specific attention to the survey methodology detailed in Section C.2, especially sources of survey error described in Section C.2.6. Moreover, readers should frame their interpretation of responses in the context of the respondent demographics detailed in Section C.3.

Please direct any questions regarding the methods used in the administration of this survey or the summarization of responses provided in this report to Julie Wernert at Indiana University, jwernert@iu.edu .

C. Document Body – XSEDE 2013 User Satisfaction Survey Results

C.1. Executive Summary

This report provides an analysis and evaluation of the XSEDE Annual Survey 2013. Section 1 describes the data collection methodology of the survey. The sample included 13 types of users with a sample size of 5000 users. The survey consisted of quantitative and qualitative questions designed to determine user satisfaction of XSEDE services and resources. The survey was available from February 11, 2013 through March 15, 2013. The overall response rate was 20.4% which represents a nearly 60% increase over the 2012 annual survey.

Data from the survey indicates that users are generally aware of the various services and resources with the notable exceptions of the XSEDE Mobile Portal and Technology Insertion Services. Data suggests that users are satisfied with XSEDE resources and services with a mean satisfaction value greater than 3 on all surveyed areas. Users were also neutral to positive about XSEDE Training activities.

Demographic analysis shows that a majority of users are male, white, and are faculty at large doctorate-granting universities. Chemistry and Engineering were the top primary fields of study for respondents.

Appendix D of this report includes all open-ended question responses. Based on a review of the responses, the following actions are recommended:

- Provide training opportunities more frequently
- Advertise training more effectively
- Continue providing high-quality documentation
- Encourage campus champions to advertise XSEDE more effectively

C.2. Data Collection Methodology

C.2.1. Sample Design

The target population for the 2013 XSEDE User Satisfaction Survey was currently registered XSEDE users. The population included 13 different types of users from across the United States who are conducting research at institutions in the academic, government, non-profit, and for profit sectors. The aim was to produce a sample distribution that represented all thirteen groups of users in proportion to their distribution in the full user population.

XSEDE provided a list of the target population, which included a total of 14,347 XSEDE users. The list included name, email address, institution, and sample type. Upon receipt, the population list was stored in a secure database created and maintained by the IU Center for Survey Research. The lists were reviewed and corrected for any errors and expunged of duplicate records.

Of the 14,347 population members, a total of 5,000 members were randomly sampled using proportionate stratified sampling by sample type. In other words, the sample was allocated to each sample type according to the percentage of the population represented by that sample type, thus yielding a sample distribution that was nearly identical to the population distribution. Table 1 provides the population and sample counts by sample type.

Sample Type	Population Count	Sample Count	Percentage of Population	Percentage of Sample
Center, non-research staff	120	42	0.84%	0.84%
Center, research staff	255	89	1.78%	1.78%
Faculty	2997	1044	20.89%	20.88%
Government researcher	194	68	1.35%	1.36%
Graduate student	5795	2020	40.39%	40.40%
High school students/faculty	44	15	0.31%	0.30%
Industrial researcher	33	11	0.23%	0.22%
Non-Profit researcher	59	21	0.41%	0.42%
Other/unknown/unaffiliated	118	41	0.82%	0.82%
Post-Doctoral fellow	2000	697	13.94%	13.94%
Undergraduate student	1426	497	9.94%	9.94%
University, non-research staff	161	56	1.12%	1.12%
University, research staff	1145	399	7.98%	7.98%
Total	*14,347*	*5,000*		

Table 1. Population and Sample Counts by Sample Type for the 2013 XSEDE Annual User Satisfaction Survey

C.2.2. Questionnaire and Email Message Development

Questionnaire development for the XSEDE Survey was completed over the course of three weeks. Based on the survey instrument used for the 2012 XSEDE User Satisfaction Survey, a new, more concise instrument was developed in concert with XSEDE leadership. After multiple revisions and feedback from various XSEDE constituencies, including XSEDE Survey Project Manager, Julie Wernert, XSEDE User Engagement Manager Robert Whitten, and XSEDE executive leadership, the questionnaire was finalized into a 20-item instrument. The questionnaire was programmed using a ColdFusion-based web survey tool and rigorously tested for web administration.

After providing respondents with a detailed description of the purpose of the XSEDE survey and specific types of activities related to the survey administration, the first section of the survey addressed the amount of time the respondent has been using XSEDE resources and services and the frequency of use in the past year. The next section addressed awareness of, and satisfaction with, resources and services. Respondents were also asked to provide open-ended feedback and suggestions for improvement. The final section of the survey consisted of questions about the respondent's role and primary research field, institutional characteristics, and individual demographic characteristics, including gender and race.

The XSEDE survey project manager developed an email invitation and reminder messages. The invitation message included a brief description of XSEDE and the survey's purpose, as well as information about data confidentiality and contact information for the XSEDE project manager. Following the initial survey invitation, up to five reminder messages were sent with special emphasis on the importance of participation and how this information will be used to improve and expand the services provided by XSEDE. Later reminders specifically highlighted the brief amount of time required to complete the survey. All messages contained a clickable unique hyperlink to the web instrument for each individual case, allowing each case to be tracked in the survey database. The messages were formatted for html and plain text per recipients' email client using Arial Campaign software.

Appendix 1 contains the final questionnaire in Word document format.

Appendix 2 contains the text of the email invitation and reminder messages.

C.2.3. Data Collection

The field period for the 2013 XSEDE Annual User Satisfaction Survey was February 11, 2013 through March 18, 2013. An email invitation and up to five reminders were sent to maximize participation. The dates of the emails were selected by the project manager and were sent according to a schedule that would ensure completion of data collection in time for the survey results to be included as part of the XSEDE annual review.

Following the initial survey invitation sent on Monday, February 11, 2013, a follow-up message was sent seven days later on Monday, February 18, 2013, to those who had not yet completed the survey, including any out-of-office cases. The second reminder was sent seven days later on Monday, February 25, 2013. Since the first three messages were sent on Mondays, the third reminder sent eight days later on Tuesday, March 5, 2013, in an effort to capture individuals who perhaps had varied email response patterns. The fourth reminder was sent six days later on Monday, March 11, 2013. A final reminder message, which noted the survey close date of March 15, 2013, was sent on Thursday, March 14, 2013, approximately four and a half weeks after the initial invitation.

The dates on which the surveys were completed closely followed the schedule of emails sent, as is typical for web surveys of this kind. Over half of the 826 combined completions and partials were completed in the first two weeks of the field period. The average duration for the survey was

approximately 10 minutes. Any completion times that seemed unusually long were removed in calculating the average completion time, as these were likely the result of a respondent keeping the survey open but not actually completing the questionnaire during that time. More detailed information on the data collection schedule and the number of survey completions by date is available in Appendix Table 1 and Appendix Figure 1 in Appendix 3

C.2.4. Final Dispositions and Response Rates

Final dispositions for all cases were classified according to the American Association for Public Opinion Research's (AAPOR) *Standard Definitions (2011)*. The codes and definitions that were used for the 2013 XSEDE Annual User Satisfaction Survey are listed in Table 2.

Code	Disposition	AAPOR Label	Description
1.1	Complete	I	Respondent completed the survey.
1.2	Partial	P	Respondent answered at least the first two survey items but did not complete (or submit) the survey.
2.11	Refusal	R	Sample member replied to the e-mail invitation or reminder stating that he or she did not want to participate.
2.12	Implicit refusal	R	Respondent consented to the survey but did not answer any items.
3.11	No invitation sent	UH	Respondent was not sent an invitation due to either invalid or missing contact information.
3.19	Nothing returned	UH	Sample member did not respond to survey; unknown if any email messages were read.
3.3	Mailing returned/undeliverable	UO	Recruitment message was not received by intended recipient due to email and/or mailing returns.
4.7	Not eligible		Sample member responded to recruitment with information indicating they were no longer eligible to participate (no longer at the current institution).
4.9	Duplicate		Respondent was duplicated within the sample.

Table 2. AAPOR Codes and Disposition Definitions for the 2013 XSEDE Annual User Satisfaction Survey

Below, Table 3 itemizes all final dispositions and the AAPOR Response Rate 2 (RR2) for the 2013 XSEDE Annual User Satisfaction Survey. The AAPOR Response Rate 2 was calculated as follows:

$$\mathbf{RR2=}\ \frac{(I+P)}{(I+P)+(R+NC+O)+(UH+UO)}$$

Overall, the response rate, excluding those who affirmatively refused to participate, was 20.4%. This response rate represents a near-60% increase over the 2012 response rate and is in line with other national surveys of this nature. The some key factors in achieving a higher level of participation compared to the previous administration may include:

- A shorter, more focused survey (average duration-to-date is 9.5 minutes)
- Invitation and reminders coming under PI Towns signature
- Notices placed on the XSEDE website and portal
- XSEDE monthly newsletter and XSEDE News articles
- Increased number of contacts (a total of six contacts, including the initial invitation)

Disposition (AAPOR Code in parentheses)	Count	AAPOR Response Rate 2
Interview (I)	760	20.4%
Partial (P)	66	
Refusal (R)	243	
Nothing Returned (UH)	2981	
Not Eligible	950	

Table 3. Final Dispositions and AAPOR Response Rate for the 2013 XSEDE Annual User Satisfaction Survey

C.2.5. Post-Survey Data Processing and Analysis

In March, the final dataset for the 2013 XSEDE Annual User Satisfaction Survey was prepared. First, survey data from the web survey were imported into SPSS for data cleaning and analysis. The main data cleaning and editing steps for numeric items were as follows. The coding of skipped items was reviewed in SPSS to ensure appropriate assignment of missing values. Data were checked for inconsistencies such as illogical values or inappropriate missing data.

Preparation of open-ended items for analysis involved removal of any identifying information and coding of the additional comments text responses using the following scheme (1=Service, 2=Allocation, 3=Resources, 4=General comment, 5=Suggestions for improvement, 6=Process, 7=Not applicable, 8=Multiple references comment).

C.2.6. Information Regarding Sources of Survey Error

Surveys of this kind are sometimes subject to types of inaccuracies for which precise estimates cannot be calculated. For example, findings may be influenced by events that take place while the survey is in the field. Events occurring since the time the surveys were completed could have changed the opinions reported here. Sometimes questions are inadvertently biased or misleading.

The views of people who responded to the survey may not necessarily replicate the views of those who refused to respond to the survey.

C.3. Results

The following analysis is based on data collected from 826 active XSEDE users who completed at a minimum the first two items of the survey. A summary of survey findings is presented in this report.

C.3.1. Overall Use and Respondent Profiles

General Profile of Respondents for the 2013 XSEDE User Satisfaction Survey

- *30% of respondents were Faculty, 32% were Graduate Students, 18% were post-doctoral students, and 9% were University research staff members.*
- *30% of surveyed users had been using XSEDE resources for less than one year. 24% had been using XSEDE resources for one to two years, and 37% of surveyed users had been using XSEDE resources for three or more years.*
- *61% of respondents consider themselves to be moderately to highly experienced XSEDE users.*
- *45% of respondents consider XSEDE resources essential for conducting their work.*

Of the 826 respondents, 515 are represented in two of the thirteen sample groups: faculty and graduate students. Where appropriate, responses from these two key groups will be highlighted.

Respondents are largely unaware of resource personnel at their institutions able to assist with their use of XSEDE. Only 14 percent report being aware of an XSEDE staff member, and less than 12 percent are aware of an XSEDE Campus Champion. Further, just 14 percent indicate they are aware of local IT support personnel who are able to assist their use of XSEDE. Some 36% indicate they are aware of a colleague at their institution who is able to assist in using XSEDE resources. Forty-five (45) percent of respondents indicate they are unaware of personnel at their institution who are able to assist with their use of XSEDE.

Overall, nearly 81% of respondents report that it would be *difficult* or *impossible* to conduct their work without the use of XSEDE resources. Fewer than 16% of respondents indicate XSEDE resources are useful, but not critical in conducting their work. A small number of respondents, or 3.5%, report that using XSEDE resources is either *sometimes* or *always* unhelpful, with additional processes and requirements outweighing the benefits. Notably among these, 33% are faculty, 29% are graduate students, and 19% are post-docs.

In looking at the two sample types with the highest percentage of responses and their rating of the usefulness of XSEDE resources, 43% reported that XSEDE resources were "Essential; I would not be able to conduct my work without the use of its resources". One-third of faculty and graduate

student respondents reported that the resources were "Helpful; I would have difficulty conducting my work without the use of its resources." Twenty-seven respondents (5%) did not provide a response to this item.

C.3.2. Experience Level

Nearly 37% of those responding report having used XSEDE resources for more than three years, with over 24% reporting one to two years of experience. Some 30% indicated less than one year of experience using XSEDE resources, and just over eight (8) percent of respondents report that they have yet to use XSEDE resources.

Nearly 39% of respondents self-describe their level of experience as "novice" or "low," while nearly 36% describe their experience level as "moderately experienced" and just over 25% of respondents describe themselves and "experienced" or "highly experienced" users. In the future, we may want to define these experience levels so we can more accurately and objectively gauge where users are in terms of experience.

In the past calendar year, respondents, on average, report using XSEDE computational, data, and/or visualization systems:

- 0 times: 18.9%
- 1-2 times: 18.5%
- 3-4 times: 14.8%
- 5-8 times: 9.6%
- 9 or more times: 35.7%
- Not Applicable: 2.6%

In the past calendar year, respondents, on average, report using XSEDE online resources (e.g., user portal, website, etc.):

- 0 times: 18.6%
- 1-2 times: 34.9%
- 3-4 times: 19.5%
- 5-8 times: 8.7%
- 9 or more times: 16.7%
- Not Applicable: 1.6%

Of 515 faculty and graduate student respondents, 60% rated their level of experience using XSEDE resources as moderately experienced or higher. There was representation from across the experience spectrum, as 17% of users rated themselves as novices and 5% considered themselves to be highly experienced XSEDE users.

C.3.3. Awareness of XSEDE Resources

Respondents were asked about their awareness of 14 major areas of XSEDE user resources and services, reporting that they are at least "somewhat aware" of *most* XSEDE resources and services,

with Computational Resources, the XSEDE User Portal, the XSEDE website, and Support/Consulting Desk Services having the highest levels of awareness among users. As might be expected, newer services (e.g., Technology Insertion Services, XSEDE Mobile, Data Transfer Services) have lower level levels of awareness. Visualization Services, Science Gateways, and Extended Collaborative Support Services have notably low awareness among XSEDE users, the root causes of which might be explored through a targeted survey at a later date.

Please rate your awareness of XSEDE resources and services on a scale of 1 to 5, with 1 being completely unaware and 5 being completely aware									
	Mean	Number of Responses	Distribution (1 = completely unaware, 5 = completely aware)						Histogram
			1	2	3	4	5		
Mission	3.16	767	9.6%	19.0%	33.0%	22.4%	15.91%		
Computational Resources	3.73	769	3.9%	7.7%	26.8%	34.7%	26.92%		
Data Storage Services	3.11	763	7.1%	22.3%	35.3%	22.9%	12.45%		
Visualization Services	2.57	763	16.4%	34.7%	31.2%	10.5%	7.21%		
Science Gateways	2.50	759	21.6%	31.6%	29.1%	10.3%	7.38%		
XSEDE User Portal (portal.xsede.org)	3.62	763	6.4%	9.7%	26.2%	30.8%	26.87%		
XSEDE Mobile Portal (mobile.xsede.org)	1.95	762	44.9%	27.0%	19.4%	5.2%	3.41%		
Data Transfer Services (e.g., Globus Online, GridFTP)	2.73	765	17.4%	27.5%	30.5%	14.4%	10.33%		
XSEDE Website (xsede.org)	3.73	769	5.2%	8.5%	27.4%	25.5%	33.42%		
Training opportunities	3.10	767	9.1%	20.1%	35.6%	21.8%	13.43%		
Education & Outreach	2.86	766	11.7%	25.5%	36.6%	17.1%	9.14%		
Support/Consulting Desk Services	3.36	764	7.9%	14.8%	31.7%	24.7%	20.94%		
Extended Collaborative Support Services	2.50	764	24.3%	29.7%	25.8%	11.5%	8.64%		
Technology Insertion Services	1.82	764	53.5%	22.9%	14.4%	5.9%	3.27%		

Table 4. Respondents' awareness of XSEDE resources and services

Among faculty and graduate students who responded to each item, the three areas with the highest levels of awareness were (2) Computational Resources, the (6) XSEDE User Portal (portal.xsede.org), and the (9) XSEDE Website (xsede.org). Computational resources received the highest awareness rating. 88% of respondents rated their awareness of computational resources as aware, very aware, or completely aware. Similar figures for the XSEDE Website and the XSEDE User Portal were 86% and 84% respectively. Awareness was much lower for technology insertion services (24%), the XSEDE Mobile Portal (30%), and science gateways (44%). For most of the remaining services, a substantial majority of respondents indicated awareness of the service.

C.3.4. Satisfaction with XSEDE Services and Resources

The survey inquired about satisfaction with XSEDE services in 22 areas. Mean satisfaction far outpaces awareness in all key service areas that were surveyed, indicating those who use a particular service are in most cases "very" to "completely" satisfied with their experience.

Please rate your satisfaction with XSEDE activities. If you have no basis for rating your satisfaction, please select "Not Applicable."										
	Mean	Number of Applicable Responses	Distribution (1 = very unsatisfied, 5 = very satisfied)						N/A	Histogram
			1	2	3	4	5			
Capability of computational resources for simulation	4.39	648	0.9%	1.1%	8.2%	37.5%	52.3%		106	
Capabilityof computational resources for data analysis	4.19	524	0.8%	1.3%	16.4%	40.8%	40.6%		227	
Capacity of computational resources for simulation	4.22	620	0.3%	3.9%	11.3%	42.3%	42.3%		132	
Capacity of computational resources for data analysis	4.09	512	0.8%	2.7%	20.1%	39.6%	36.7%		232	
Availability of tools and libraries	4.09	650	0.6%	4.5%	14.9%	45.4%	34.6%		99	
Data archiving capabilities of XSEDE resources	3.83	530	1.3%	6.6%	24.3%	43.0%	24.7%		213	
Visualization facilities and rendering capabilities	3.71	353	0.8%	3.1%	38.5%	38.8%	18.7%		392	
Availability of support/consulting services	4.15	607	1.5%	2.5%	15.2%	41.7%	39.2%		140	
Response time of support/consulting service	4.21	602	1.2%	2.0%	14.8%	38.5%	43.5%		147	
Effectiveness of support/consulting services	4.19	598	1.2%	2.5%	14.4%	40.0%	42.0%		147	
Availability of extended collaborative support	3.90	297	0.7%	1.3%	31.3%	40.4%	26.3%		442	
Effectiveness of extended collaborative support	3.87	286	1.0%	1.7%	31.8%	40.2%	25.2%		449	
Availability of training	3.92	443	0.9%	2.3%	24.4%	49.0%	23.5%		292	
Effectiveness of training	3.93	384	0.8%	1.8%	26.3%	45.6%	25.5%		339	
XSEDE Website (xsede.org)	4.11	648	0.8%	0.9%	14.8%	53.4%	30.1%		85	
XSEDE User Portal (portal.xsede.org)	4.12	624	0.8%	1.6%	15.5%	48.9%	33.2%		105	
XSEDE Mobile Portal (mobile.xsede.org)	3.73	213	1.9%	0.0%	41.3%	36.6%	20.2%		513	
XSEDE Allocation Process	4.03	591	1.0%	4.6%	16.6%	46.2%	31.6%		145	
XSEDE Allocation Awards	4.01	579	1.0%	4.8%	18.3%	43.9%	32.0%		154	
Technology Insertion Services	3.70	196	1.0%	2.0%	42.9%	33.7%	20.4%		521	
Data Transfer Services (e.g. Globus Online, GridFTP)	4.00	403	0.5%	3.0%	25.1%	39.2%	32.3%		318	
Overall Satisfaction with XSEDE	4.28	668	0.4%	1.2%	8.2%	50.1%	40.0%		65	

Table 5. Respondents' satisfaction with XSEDE resources and services

In examining faculty and graduate student responses, approximately 80% or greater of respondents reported that they were very satisfied or satisfied with service in half of the 22 areas. The highest levels of satisfaction were noted for the capability of XSEDE computational resources for simulation (89%), the capacity of computational resources for simulation (85%), the XSEDE website (83%) and the XSEDE User Portal (83%). Lower levels of satisfaction were found for the data archiving capabilities of XSEDE resources (68%), availability of training (71%), effectiveness of training (71%), and data transfer services (e.g., Globus Online, GridFTP) (71%), Other areas such as technology insertion services (52%) and visualization facilities and rendering capabilities of XSEDE resources (57%) showed lower levels of satisfaction but these were areas in which nearly half or more of respondents reported that the item was not applicable. Given smaller sample size

and the likelihood that some respondents may have selected neither satisfied nor dissatisfied to indicate that they have not used the service, we would be cautious in interpreting these findings.

XSEDE was praised for its level of service in several open-ended comments, including:

- XSEDE resources are exceptionally valuable in completing our projects. It enables us to complete project within weeks which otherwise would take months to complete.
- Promoting excellence in computational projects
- People to talk to. I love their insights; they are really helpful and useful.
- Excellent throughput!
- Overall I am very satisfied. Help Desk is really great.

Respondents provided suggestions for areas of improvement, including:

- Overall, it provides a great service. I think there would be more buy-in if scientists outside of computational/mathematical fields were more aware of it and if it were more accessible (user friendly) for them.
- Hope to have a better GUI terminal on the portal website.
- XSEDE is an important resource for connecting to peers within academic research computing. It enables research at a national level, as well as informs local effort. Lowering the barriers for securing a startup allocation, along with the dissemination of support knowledge, are key to enabling PIs and their research.
- It would be helpful to have a description/listing of resources/services associated with each discipline

Appendix 4 contains all open-ended text responses.

C.3.5. Training

Respondents were largely neutral to positive about about the training methods they were asked to rate, but showed a clear preference for the ability to self-serve through the use of online reources. We anticpate a targeted survey in the first quarter of Project Year 3 to more deeply research training needs, habits, and preferences.

Please rate your preference for the following training delivery methods.									
	Mean	Number of Applicable Responses	Distribution (1 = Strongly do not prefer, 5 = strongly prefer)						Histogram
			1	2	3	4	5	n/a	
XSEDE Web Documentation	4.336	667	0.4%	1.0%	10.0%	41.4%	47.1%	75	
Live, In-Person Tutorials/Workshops	3.412	605	2.3%	13.6%	39.2%	30.6%	14.4%	135	
Live, Online Tutorials/Workshops	3.704	624	1.8%	8.8%	29.2%	37.8%	22.4%	118	
Self-Paced Online Tutorials	4.156	649	0.6%	2.3%	14.3%	46.4%	36.4%	95	

Table 6. Respondents preferred training methods

C.4. Respondent Demographics

- Gender [723]
  - Male: 82%
  - Female: 18%

- Ethnicity [718]
  - Non-Hispanic: 94%
  - Hispanic: 6%

- Race [726]*
  - White: 64.5%
  - Asian: 33.3%
  - Black/African-American: 2.8%
  - American Indiana/Alaska Native: 0.7%
  - Native Hawaiian/Pacific Islander: 0.3%

  **Respondents were free to select more than one race category; percentages do not equal 100.*

- Size of respondents' academic institutions [749]
  - Large (greater than 10,000 degree-seeking students): 62.6%
  - Medium (3000-10,000 degree-seeking students): 21.9%
  - Small (less than 3000 degree-seeking students): 9.2%
  - Not applicable: 6.3%

- Characteristics of respondents' academic institutions [742]*
  - Doctorate-granting University: 78.3%
  - Research focused Institution: 51.1%
  - Baccalaureate College/University: 25.9%
  - Master's College/University: 25.6%
  - Teaching focused Institution: 19.9%
  - Government Lab or Center: 9.2%
  - Minority Serving Institution: 6.3%
  - EPSCoR Institution: 6.9%
  - Non-Profit Organization (non-academic): 2.7%
  - Corporate/Industrial Organization: 1.3%
  - Associate's College (all degrees are at the associate's level): 0.5%

  **Respondents were free to select as many characteristics as needed to describe their institution; percentages do not equal 100.*

- Respondents' roles within their current organizations
    - University faculty or equivalent: 32.1%
    - Graduate student: 27.7%
    - Postdoctoral fellow: 21.0%
    - University/Center research staff or equivalent (non-postdoctoral): 14.1%
    - Other: 1.9%
    - University/Center non-research support staff (or equivalent): 1.2%
    - Undergraduate student: 1.1%
    - Executive leadership (e.g., director, CIO, etc.): 0.9%

- Respondents' primary fields of study
    - Chemistry: 20.3%
    - Engineering: 19.4%
    - Physics: 15.5%
    - Computer and Information Science: 12.2%
    - Biology: 10.4%
    - Astronomy: 7.2%
    - Atmospheric Sciences: 3.2%
    - Earth Science: 3%
    - Other: 1.8%
    - Mathematics: 1.8%
    - Economics: 1.1%
    - Materials Science: 0.9%
    - Computational Science: 0.7
    - Not Applicable: 0.7%
    - Health and Wellness: 0.5%
    - Ocean Science: 0.5%
    - Medicine: 0.4%
    - Sociology: 0.4%

D. Appendices

Appendix Contents

- Appendix 1: Final Questionnaire
- Appendix 2: Email Invitation and Reminder Messages
- Appendix 3: Data Collection Timing Information
- Appendix 4: Open-Ended Survey Responses

D.1. Appendix 1: Final Questionnaire

XSEDE (Extreme Scientific and Engineering Discovery Environment)

Annual User Satisfaction Survey
Final Questionnaire

INFORMED CONSENT:

You are invited to participate in the annual XSEDE User Satisfaction Survey. We ask that you read this form and ask any questions you may have before agreeing to take the survey. This survey is funded by the National Science Foundation.

STUDY PURPOSE:

The purpose of this survey is aimed at assessing current levels of satisfaction with the XSEDE cyberinfrastructure environment and its associated resources and services (e.g., training, allocations, support, etc.). Survey information will be used to improve and expand the services provided by XSEDE and to aid in the decision making process related to resource allocation.

PROCEDURES FOR THE STUDY:

If you agree to be in the study, you will complete an online survey in which you will not be required to provide any identifying information. You will have the option of providing your name and contact information if future contact is desired. Future contact may be in the form of telephone, videoconference, or in-person interviews and/or focus groups, which would be part of potential future studies. You will be asked to disclose your gender, race, and ethnicity for demographic purposes only. The survey will remain confidential and survey responses will not be associated with any identifying information, even if you choose to disclose your name and contact information for potential future contact.

You will receive via email an initial letter of invitation, followed by up to three reminder messages. After the initial letter of invitation, only those who have not responded will receive subsequent messages. You will have the opportunity to opt out of all future communications upon receipt of the initial letter of invitation.

The survey should not take more than 10 minutes to complete, with an average time for completion in the six-eight minute range.

CONFIDENTIALITY:

Efforts will be made to keep any personal information that you might inadvertently disclose confidential. We cannot guarantee absolute confidentiality. Your personal information may be disclosed if required by law. Your identity will be held in confidence in reports in which the

survey results may be published and/or databases in which results may be stored. Tape or video recordings will not be made during the course of this survey.

Organizations that may inspect and/or copy survey records for quality assurance and data analysis include groups such as the study investigator and his/her research associates, the Indiana University Institutional Review Board or its designees, the study sponsor, the National Science Foundation, and (as allowed by law) state or federal agencies, specifically the Office for Human Research Protections (OHRP).

CONTACTS FOR QUESTIONS OR PROBLEMS:

For questions about the study, contact Julie Wernert at 812.856.5517 or jwernert@iu.edu.

For questions about your rights as a research participant or to discuss problems, complaints or concerns about a research study, or to obtain information, or offer input, contact the IU Human Subjects Office at (812) 856-4242 or by email at irb@iu.edu.

VOLUNTARY NATURE OF STUDY:

Taking part in this study is voluntary. You may choose not to take part or may leave the survey at any time. Leaving the survey will not result in any penalty. Your decision whether or not to participate in this survey will not affect your current or future relations with Indiana University or with the XSEDE program.

IRB Approval Date (Study #1301010398) January 17, 2013

SURVEY:

1. **How long have you used XSEDE (and before that, TeraGrid) resources and/or overseen the use of XSEDE (or TeraGrid) resources by others?**

   ☐ Never/not yet used
   ☐ Less than 6 months
   ☐ 6-11 months
   ☐ 1-2 years
   ☐ 3-5 years
   ☐ More than 5 years

2. **Please describe your level of experience using XSEDE resources:**

   ☐ Novice
   ☐ Low experience
   ☐ Moderately experienced
   ☐ Experienced
   ☐ Highly experienced

3. **On average, how many times per month did you use XSEDE computational, data, and/or visualization systems in the last calendar year?**

   ☐ 0
   ☐ 1-2
   ☐ 3-4
   ☐ 5-8
   ☐ 9 or more
   ☐ Not applicable

4. **On average, how many times per month did you use XSEDE's online resources (e.g., user portal, website, etc.) in the last calendar year?**

   ☐ 0
   ☐ 1-2
   ☐ 3-4
   ☐ 9 or more
   ☐ Not applicable

5. **How would you rate the usefulness of XSEDE resources in conducting your work?**

☐ Essential; I would not be able to conduct my work without the use of its resources.
☐ Helpful; I would have difficulty conducting my work without the use of its resources.
☐ Neutral; useful but I could conduct my work without its resources.
☐ Sometimes unhelpful; additional processes and requirements occasionally outweigh benefits.
☐ Always unhelpful; additional processes and requirements outweigh benefits.

6. **Are you aware of a resource person at your institution available to assist with your use of XSEDE? Please select all that apply.**

☐ XSEDE staff member
☐ XSEDE Campus Champion
☐ Local IT support person (i.e., an individual not designated as an XSEDE Campus Champion)
☐ Colleague (faculty, post-doc, graduate student, etc.) at my institution
☐ No, I do not know of a resource person at my institution

7. **Please rate your satisfaction with XSEDE activities. If you have no basis for rating your satisfaction, please select "Not applicable".**

	Very dis-satisfied	Dis-satisfied	Neither satisfied nor dis-satisfied	Satisfied	Very satisfied	Not applicable
	1	2	3	4	5	N/A
Capability (scalability) of XSEDE computational resources for simulation, particularly parallel processing applications						
Capability (scalability) of XSEDE computational resources for data analysis, particularly parallel processing applications						
Capacity (in terms of high throughput computing) of computational resources for simulation						
Capacity (in terms of high throughput computing) of computational resources for data analysis						

Availability of tools and libraries needed for your work						
Data archiving capabilities of XSEDE resources						
Visualization facilities and rendering capabilities of XSEDE resources						
Availability of support/consulting services from XSEDE						
Response time of support/consulting service						
Effectiveness of support/consulting services						
Availability of extended collaborative support						
Effectiveness of extended collaborative support						
Availability of training						
Effectiveness of training						
XSEDE website (xsede.org)						
XSEDE User Portal (portal.xsede.org)						
XSEDE Mobile Portal (mobile.xsede.org)						
XSEDE Allocation Process						
XSEDE Allocation Awards						
Technology Insertion Services						
Data Transfer Services (e.g., Globus Online, GridFTP)						
Overall satisfaction with XSEDE						

8. **Please rate your preference for the following training delivery methods:**

	Strongly do not prefer	Do not prefer	Indifferent	Prefer	Strongly prefer	Not applicable
	1	2	3	4	5	N/A
XSEDE Web Documentation						
Live, In-Person Tutorials / Workshops						
Live, Online Tutorials / Workshops						
Self-Paced, Online Tutorials						

9. **What unique value did the XSEDE environment provide to you beyond enabling access to a computing resource?**

10. **How could XSEDE be more useful to your research or educational program? (For example, are there new resources or services that would be useful? Are there new features or improvements to existing services that would be useful?)**

11. **Do you have any other suggestions or comments regarding XSEDE or the value derived from the NSF's investment in XSEDE?**

12. **Please best describe your primary role within your current organization:**

☐ Executive leadership (e.g., director, CIO, etc.)
☐ University faculty or equivalent
☐ University/Center research staff or equivalent (non-postdoctoral)
☐ University/Center non-research support staff (or equivalent)
☐ Postdoctoral fellow
☐ Graduate student
☐ Undergraduate student
☐ Other, please specify: _____

13. What is your primary research field or field of study (as categorized by the National Science Foundation, National Institutes of Health, and/or the Department of Energy)?

☐ Astronomy
☐ Atmospheric Sciences
☐ Biology
☐ Chemistry
☐ Diseases
☐ Computer and Information Science
☐ Earth Science
☐ Engineering
☐ Health and Wellness
☐ Mathematics
☐ Medicine
☐ Physics
☐ Psychology
☐ Sociology
☐ Other, please specify: _____
☐ Not applicable

14. Please describe the size of your academic institution:

☐ Small (less than 3,000 degree seeking students)
☐ Medium (3,000 – 10,000 degree seeking students)
☐ Large (greater than 10,000 degree seeking students)
☐ Not applicable

15. Please describe your institution: Please select all that apply.

☐ EPSCoR Institution
☐ Minority-Serving Institution
☐ Associate's College (all degrees are at the associate's level)
☐ Baccalaureate College/University
☐ Master's College/University
☐ Doctorate-Granting University
☐ Teaching-Focused Institution
☐ Research-Focused Institution
☐ Government Lab or Center
☐ Non-Profit Organization (non-academic)
☐ Corporate/Industrial Organization

16. What is your gender?

☐ Male
☐ Female

17. What is your ethnicity?

☐ Hispanic or Latino
☐ Not Hispanic or Latino

18. What is your race? Please select all that apply.

☐ American Indian or Alaska Native
☐ Asian
☐ Black or African-American
☐ Native Hawaiian or Other Pacific Islander
☐ White

19. Would you like to be contacted for a follow-up interview to discuss your feedback with XSEDE?
(PROGRAMMING SKIP: IF 'NO' END SURVEY)
☐ Yes
☐ No

20. Please provide the following information for a follow up interview to discuss your feedback with XSEDE.

Name:
Institution:
Phone number:
Preferred email address:

CLOSING SURVEY PAGE:

Thank you very much for your responses.
For more information about XSEDE, please visit www.xsede.org

D.2. Appendix 2: Email Invitation and Reminder Messages

D.2.1. Survey Invitation

From Name: John Towns
From Email: Center for Survey Research
Subject Line: 2013 XSEDE User Satisfaction Survey

Dear {firstname lastname}:

XSEDE (Extreme Science and Engineering Discovery Environment) is the most advanced, powerful, and robust collection of integrated advanced digital resources and services in the world — a single virtual system used by researchers, technologists, and scientists, such as yourself, to interactively share computing resources, data, and expertise.

Your feedback is vital to the evolution of this important resource, and I am writing to ask for your participation in the 2013 XSEDE User Satisfaction Survey conducted on behalf of XSEDE by Indiana University.

The annual survey aims to assess users' current levels of satisfaction with the XSEDE computational environment and its associated services and activities (e.g., training, allocations, conferences, user support, etc.). Your feedback will be used to improve and expand services to the XSEDE user community and to aid in the decision-making processes related to resource allocation.

The survey can be accessed here:
https://websurv.indiana.edu/xsede13/{loginID}

The Indiana University Center for Survey Research (CSR) administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data or included in any reports. Should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu., or (812) 856-5517.

Sincerely,

-John

John Towns
PI and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).
If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: https://websurv.indiana.edu/{surveyidentifier}
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: XXXX

D.2.2. Reminder #1

From Name: John Towns
From Email: Center for Survey Research
Subject Line: REMINDER: 2013 XSEDE User Satisfaction Survey

Dear {firstname lastname}:

Last week, I wrote asking for your feedback on the XSEDE computational environment and its associated services and activities. Your feedback is vital to the evolution of this important resource, and I am writing again in the hope that you will take a few moments yet today to complete the survey.

The survey can be accessed here:
https://websurv.indiana.edu/xsede13/{loginID}

The Indiana University Center for Survey Research (CSR) administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data or included in any reports. Should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Thank you for your support and consideration.

Sincerely,

-John

John Towns
PI and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

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- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: XXXXX

D.2.3. Reminder #2

From Name: John Towns
From Email: Center for Survey Research
Subject Line: REMINDER: 2013 XSEDE User Satisfaction Survey

Dear {firstname lastname}:

Earlier this month, I wrote asking for your feedback on the XSEDE computational environment and its associated services and activities. Your feedback helps us to improve and expand services to the XSEDE user community and guides us in the decision-making processes related to resource allocation.

I am writing again to ask that you take ten minutes out of what I know is already a very busy day to give us your feedback. Your time is greatly valued and your insights are of great interest to XSEDE leadership.

The survey can be accessed here:
https://websurv.indiana.edu/xsede13/{loginID}

The Indiana University Center for Survey Research (CSR) administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data or included in any reports. Should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Again, thank you for your support and consideration.

Sincerely,

-John

John Towns
PI and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: https://websurv.indiana.edu/{surveyidentifier}
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: XXXXX

D.2.4. Reminder #3

From Name: John Towns
From Email: Center for Survey Research
Subject Line: XSEDE Needs Your Feedback: 2013 XSEDE User Satisfaction Survey

Dear {firstname lastname}:

I am writing again to ask for your participation in the 2013 XSEDE User Satisfaction Survey. I cannot emphasize enough how important your voice is in helping us to improve and expand services to the XSEDE user community.

Please take this opportunity to contribute to the future evolution of this important scientific resource and complete your survey today. I assure you that the survey is very brief and will take less than ten minutes of your time.

The survey can be accessed here:
https://websurv.indiana.edu/xsede13/{loginID}

The Indiana University Center for Survey Research (CSR) administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data or included in any reports. Should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Your time and insights are very much appreciated.

Sincerely,

-John

John Towns
PI and Project Director, XSEDE
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University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: https://websurv.indiana.edu/{surveyidentifier}
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: XXXX

D.2.5. Reminder #4

From Name: John Towns
From Email: Center for Survey Research
Subject Line: XSEDE Survey Closing Friday!

Dear {firstname lastname}:

Before our survey concludes on March 15, I wanted to again ask for your participation. If at all possible, please take just a few minutes to provide your feedback. Your insights are of great interest and value to XSEDE leadership.

The survey can be accessed here:
https://websurv.indiana.edu/xsede13/{loginID}

The Indiana University Center for Survey Research (CSR) administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data or included in any reports. Should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Your time and insights are very much appreciated.

Sincerely,
-John

John Towns
PI and Project Director, XSEDE
Director, Collaborative Cyberinfrastructure Programs
National Center for Supercomputing Applications
University of Illinois

The IU Center for Survey Research is administering this questionnaire on behalf of the National Science Foundation-funded Extreme Science and Engineering Discovery Environment (XSEDE).

If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: https://websurv.indiana.edu/{surveyidentifier}
- In the Login box, enter: {LoginID}

If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."

Reference ID: XXXX

D.2.6. Final Reminder

From Name: John Towns
From Email: Center for Survey Research
Subject Line: XSEDE Survey Closing Friday!

Dear {firstname lastname}:

Before our survey concludes on March 15, I wanted to again ask for your participation. If at all possible, please take just a few minutes to provide your feedback. Your insights are of great interest and value to XSEDE leadership.

The survey can be accessed here:
https://websurv.indiana.edu/xsede13/{loginID}

The Indiana University Center for Survey Research (CSR) administers the survey and assures that your responses will remain completely confidential. Neither your name nor your organization will be associated with any data or included in any reports. Should you voluntarily provide your name and contact information for follow up at a later date, your contact information will not be associated with your survey responses.

If you have any questions about this survey or how the results will be used, please feel free to contact Julie Wernert, Information Manager, Indiana University, at jwernert@iu.edu, or (812) 856-5517.

Your time and insights are very much appreciated.

Sincerely,
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If you are unable to access the link listed above, please follow these instructions:

- In your Web browser, type: https://websurv.indiana.edu/{surveyidentifier}
- In the Login box, enter: {LoginID}

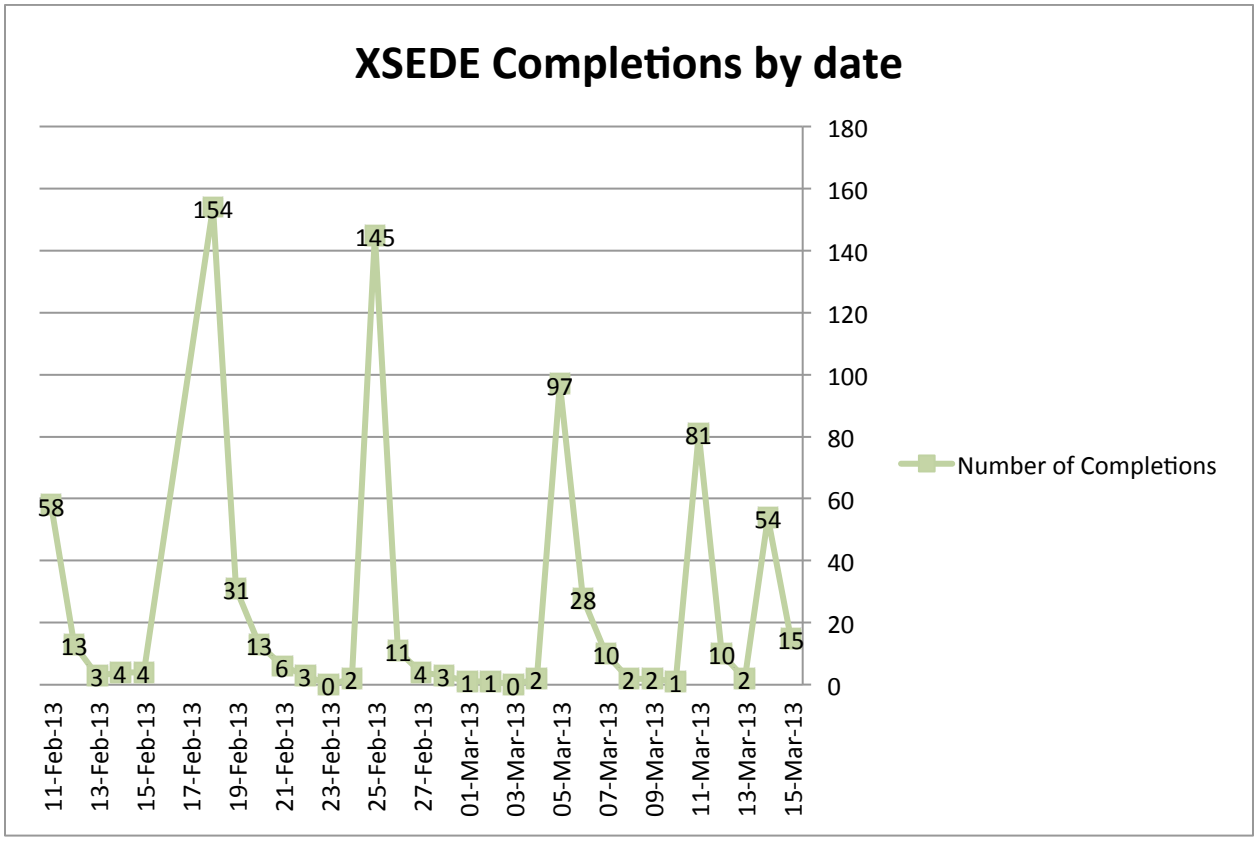
If you have any other difficulties logging in or have questions about the study, please e-mail csr@indiana.edu for assistance.

If you do not wish to participate or receive further notices about this study, please use the instructions above to access the survey site. After logging in, select the button marked "I do not wish to participate."
Reference ID: XXXX

D.3. Appendix 3: Data Collection Timing Information

Recruitment Message Type	Date Sent	Number Sent
Survey Invitation	2/11/2013	4,991
Reminder #1	2/18/2013	3,980
Reminder #2	2/25/2013	3,725
Reminder #3	3/5/2013	3,496
Reminder #4	3/11/2013	3,285
Final Reminder	3/14/2013	3,167

Appendix Table 1. Data Collection Schedule and Number of Messages Sent for the 2013 XSEDE Annual User Satisfaction Survey



Appendix Figure 1. Number of Survey Completions by Date for the 2013 XSEDE Annual User Satisfaction Survey

D.4. Appendix 4: Open-Ended Survey Responses

XSEDE User Satisfaction Survey 2013

Question #12: Do you have any other suggestions or comments regarding XSEDE or the value derived from the NSF's investment in XSEDE?

Theme #1- Service oriented suggestions and comments

- Consulting is extremely poor. I almost always have to figure out the problem myself, and it is usually a system configuration problem, not a problem with my code.
- I do not know how most groups utilize all the resources, but for me: more hardware/flops, less support. I have no need for visualization and little need for other support services.
- Waiting for computing resources on Blacklight is much too long. And, we have to resubmit. Never had so much trouble using a resource before.
- The training resources are abysmal. I waited 4 months since acquiring my allocation to receive training. The online 'new user training' amounted to little more than someone reading aloud what the XSEDE website already says. Of the scant 45 minutes in the course, 10 or so were devoted to telling us how to apply for allocation time...(everyone in the course was already granted time). You cannot start deducting allocation time from a new user until they know how to run calculations. I lost at least 4 months of this allocation waiting for training and instead I lost another 45 minutes of my time. YOUR HELP STAFF SHOULD CONTACT ALL NEW USERS AND WALK THEM THROUGH SETTING UP CALCULATIONS. only then, can you start deducting their allocation.
- service that can mail HD disk to center for "easier" transfer of big data
- "I'm a developer with (DEIDENTIFIED)...
- We have several cluster at (DEIDENTIFIED) and I've been developing code for these clusters for over 8 years...
- I value very much being able to get admin help when 'I get into trouble'...
- I also value being able to ask MPI questions when I implement new things within my codebase...
- I a member of a science-team awarded access to Blue Waters, I've used Ranger (U.Texas) on two occasions (just finishing up a 2nd these as Ranger was being decommissioned)...
- I had many email interchanges with Doug James, having the personal contact was great, I value that very much and was very impressed with his responsiveness, throughness"
- "Need to invest more in IT tech support.
- I had a key issue that was never answered, even after I pleaded for help. I had to figure out the solution by myself."
- The online documentation and user portal are excellent. When I started using the HPC resources on the TeraGrid about 6 or 7 years ago there were online recorded tutorials that were very helpful, especially for just getting started using the different submission systems on the various clusters. Overall, coming into the TeraGrid as a user on a local cluster, I was able to compile my code and run jobs on the TeraGrid, on several different sites, with little to no help or consultation from anyone besides the experience I brought and the online documentation. I should point out that the documentation at TACC was also excellent. The online tickets are resolved in a timely manner, although the response time has been a little slower this past year. The responses are typically of high quality.
- I did run into a bug recently with the queue predictor where it stopped giving queue predictions. I applied for a supplementary allocation in 2012 but received no information on its status (neither that the request was declined, approved, being processed etc).

Theme #2- Allocation oriented suggestions and comments

- "I think we could make good use of about twice the annual allocation our group usually receives. Also, I disagree with the policy that says if we ask for a certain amount of time to do a project and receive half that amount, that we are not allowed to submit a supplement for the same project for the remainder of the time. We have to account for every minute of time we ask for in detail with benchmarks and a justification of why we need that many hours. Clearly when a group receives half the amount asked for, they must either forgo half the projects they are expected to complete that year, or else cut corners. If there are no available resources for any supplement that is one thing, if there is not enough interest to conclude a study rigorously, that should be different. Those are independent questions."

Theme #3- Resource oriented suggestions and comments

- I am lucky to have used this easily available resource.
- What an incredible resource, it would be ridiculous and redundant to mirror XSEDE in miniature at every site that needs computational resource. XSEDE provides tremendous bang for the buck.
- XSEDE has been an extremely valuable resource for me. I much prefer the model of professionally run supercomputing centers than having less powerful, local computing resources that I have to look after closely.
- We need more resources.
- We've had a lot of problems with Lustre on the various platforms. We've never gotten an adequate solution to those problems.
- There should be more HPC resources. I do not run at the scale of INCITE or Blue Waters, more large scale capacity computing would be great.
- This is, most definitely, an extremely valuable resource.
- We are extremely pleased with the computational resources provided and only wish there were more.
- A very good job being done. A very useful resource.
- More CPUs
- I'm a strong supporter of NSF's investment into XSEDE resources.
- XSEDE is a highly valuable resource, as providing access to open cluster resources is an important part of broadening participation in the sciences. We need XSEDE in order to continue to build and diversify the HPC community.
- Having the computational resources is a boon to my research

Theme #4- General comments and suggestions

- Thank you!
- Very good investment from NSF. I would not be able to conduct my research without it.
- Keep supporting XSEDE!
- I have great respect for XSEDE's education and outreach program. I think it is one of the most valuable parts of XSEDE.
- Very valuable.
- XSEDE is critical to our science!
- I think that XSEDE provides a very valuable resource for research and training of students in the US.
- XSEDE enables me to focus on the science instead of on maintaining my own computing infrastructure, which will be outdated in 2 years...
- XSEDE is essential for conducting cutting edge science in computational fields because typical investigator grants cannot be used for building large computer clusters. The value derived from XSEDE is immense and it spans many fields of science.
- XSEDE is extremely valuable to individual researchers who for various reasons cannot acquire DOD, DOE or NASA resources.

- XSEDE is an essential resource. NSF should continue and enhance its investment in XSEDE.
- You should publicize your utility to the community more.
- Awesome investment. Keep doing it.
- Keep up the current expansion of available resources. XSEDE is invaluable for those of us at smaller institutions.
- This is highly useful for my research as my institute does not have that computational infrastructures and personnel.
- XSEDE does an excellent job. I don't know how much of the NSF budget goes to XSEDE. I do have some concerns whether the excellent service comes at the expense of support for the NSF core programs.
- Not really -- but do everything in your power to continue the availability of this resource for those researchers at universities that don't have access to parallel computing environments.
- xsede is a critical resource. I hope NSF continues and expands its commitment.
- A very worthwhile investment by NSF. Allowed us to carry out computations we would not have otherwise been able to complete.
- Keep up the good work. Don't divert too many resources to 'big data' - it'll look small soon enough.
- I fully support the principle of XSEDE and NSF's investment therein. Access to high-performance computing is essential for scientists and the Nation. Truly large-scale users should benefit from extensive access to XSEDE resources. The actual impact on smaller users is, in my opinion, probably not large and could be improved upon.
- "I could not do what I'm doing w/o xsede.
- The big high throughput resource (Condor) disappeared this season. Will it be replaced with something else?"
- Please keep investing in this important resource!
- I think that XSEDE provides very valuable computational resources for NSF funded science.
- I gain a huge amount of indirect benefit from XSEDE through my colleagues' use of it. In particular, the data archiving services allow them to store data and allow me to examine a copy instead of using XSEDE's resources directly.
- XSEDE is an excellent investment. I always received amazing support for my research.
- This resource is essential for continuing scientific in situ work and training new personnel and students in the field.
- Very good and productive initiative taken by up by XSEDE members. Thanks to the members of the XSEDE
- My research would essentially be impossible without XSEDE. The investment of NSF in XSEDE helps to provide computational scientists outside of typical disciplines such as CS or physics access to high-end resources that otherwise may be prohibitively difficult to access, but are still vital to progress our science.
- Thanks for all of your hard work! We could not have done the class without your help.
- I think it is a fantastic and worthwhile endeavor to invest in XSEDE. It was absolutely pivotal in my research.
- I think XSEDE is a very worthwhile investment since it provides resources that are otherwise not available or possible in many institutions.
- This is a wonderful tool. I am a PhD student who's research is largely based on scientific computing done on XSEDE.
- I think XSEDE is an excellent organization that provides equal and abundant opportunities to hundreds and thousands of researchers who do not have enough and powerful computing resources to perform challenging scientific computations at their local research institutions/schools/labs within the country.
- As I am now a postdoctoral research fellow outside the US and have not used these resources since I left, I'd be very interested to apply for time again for my projects (in conjunction with my US collaborators).
- Our research would not be possible without XSEDE resources.
- It is an invaluable resource. Please continue to support it.

- I believe that XSEDE is a quite worthwhile endeavor.
- We could make more use of it.
- I think that NSF investment is entirely worthwhile. I also think there is a great deal of work to be done to realize its usefulness to biologists.
- NSF should continue investing in XSEDE. Allocations at XSEDE in the past several years have enabled me to conduct scientific researches at the interface of biology, physics, and chemistry, leading to more than two dozen papers in field-leading journals.
- No, XSEDE is superb.
- The NSF's investment in XSEDE has indirectly allowed me to conduct research in a new area .
- This is investment that allows much more valuable research than could come from individual NSF grants.
- no - it is a great resource. I think it is very important to keep it funded.
- Very important resource for computational activities.
- No I think Xsede is aligned with its mission.
- you are doing what NSF envisions in large scale computing in the future.
- It is a valuable resource that has enabled my lab to do computational analyses which would not have been possible otherwise using our local resources.
- Very helpful! Appreciate it! One suggestion is that I am willing to use the visualization ability.
- You did an excellent work.
- Thank you for making research possible that otherwise would not be.
- My research would not be possible without XSEDE. Thank you NSF for providing this resource for institutions that can't provide their own supercomputing resources.
- XSEDE is the envy of my international colleagues.
- Super valuable!
- My research work would not be possible without XSEDE support.
- The NSF should continue to invest in XSEDE since many smaller institutions may not have the financial resources to own their own copies of the computational software.
- It is great to have access to great computational resources at a small college. Exposing my undergraduates to HPC is a great experience!
- A brilliant program. Greatly contributes to the effectiveness of the nation's science effort.
- "These machines are designed more for sex appeal and publicity than actual performance.
- Except for the GPUs, they have been getting slower (because of memory bandwidth contention) with time on real scientific problems. Top500 is not a real problem. Nobody sane uses N^3 algorithms when many other O(N) algorithms exist. "
- In my field of molecular structures and energies, my allocation is essential.
- XSEDE is a critical resource for my work that is supported by NSF, DOE, federal laboratories and industry.
- Great resource!
- It allowed us to do experiments on a much finer scale that were useful to other groups
- XSEDE is essential to cutting edge modeling necessary for the progress of research in my area. NSF needs to keep this investment strong.
- XSEDE is a fantastic resource; we simply could not do our science without it.
- It's essential for scientists/researchers at small institutions who want to do computationally intensive research.
- Xsede is an excellent facility. Many of the campus clusters, such as the one at Michigan, are not adequate for high performance computing. A major problem is that the systems get flooded by junk Matlab jobs. Xsede does a good job of keeping away Matlab so that their facilities are not misused.
- important program - hope to see XSEDE continue and gain more use in the high performance community
- essential to have such capacity for computing in order to make our calculations useful, way beyond what most local academic clusters could handle.
- I think XSEDE is a critical part of national research infrastructure; please keep up the good work!

- I am very satisfied with XSEDE computational resources. Those administrators of the supercomputers are very professional.
- I love being able to use these services and resources. Keep up the good work!
- See previous.

Theme #5- Suggestions for Improvement

- NSF's investment in XSEDE can be seen as the government's interest in providing quality computing services to the nation's researchers. USA/NSF should think long term and invest in more fundamental research. In doing so they can reclaim the undisputed #1
- It would be nice to be able to run very long (weeks), non-parallel jobs too.
- More reachability
- NSF's investment could be more beneficial if the university help support it and encourage student to use the resource and teach how to utilize and use the resources. I have never heard any professor at (DEIDENTIFIED) let students know about it. Nor, have I ever since anything from our campus champion. I met him at CS12, he took us out to lunch. I let him know I would like to learn more. We have not talked about x-SEDE since. I don't think I should have to track him down to get help learning about XSEDE and how to use the resources available.
- I feel it should be easier for graduate students to apply and earn additional computational time - requiring a PI's influence curtails the ability for a student to progress.
- I think that NSF is taking a nice approach trying to balance funding in a reasonable way for both hardware and applications. I believe applications development is where some interesting breakthroughs will happen in the short to medium term future. NSF funding of applications support on the funded hardware is a very good thing, and to make it even better funding to develop/enhance critical HPC software layers and standards and making this funding **contingent on getting them pushed out to the community for production use** would also be a good thing. I am thinking of things like OpenMP with accelerator support, MPI, numerical/scientific libraries - these things could use a little bit of forward thinking.
- smaller grants with a running selection process would be ideal for smaller institutions which require computational resources beyond the one available at the institution, but that don't need the full capabilities of most xsede resources. the limitation of a single startup is too stringent.
- It should give more SUs and space to store data.
- It is better to approve our application more efficiently. And some resources are not easy to get the computation resources.
- Overall, it provides a great service. I think there would be more buy-in if scientists outside of computational/mathematical fields were more aware of it and if it were more accessible (user friendly) for them.
- Local/regional expertise (e.g. from centers represented in CASC) is critical. It would be better if XSEDE shifted more to a train-the-trainer model.
- 1. Improved allocation process.
- 24-hours wall time limit may be problematic for new discovery."
- add more online tutorial and material to lower the learning-curve.
- I hope you can set up a BBS to improve communications between the users. I really want to share my experience, and ask for help over there.
- I would like to see better information services and have a more consistent way of interacting with XSEDE.
- XSEDE is an important resource for connecting to peers within academic research computing. It enables research at a national level, as well as informs local effort. Lowering the barriers for securing a startup allocation, along with the dissemination of support knowledge, are key to enabling PIs and their research.
- perhaps make the website more user friendly
- A better way to track acknowledgement to the XSEDE resource in publications may be useful. Perhaps a special session in XSEDE conference for users to report results, in a way that can help

on-going allocation award, may be very useful. This can help interactions between review panels and project teams.

- "We are very sorry, due to a number of circumstances, we never reached a level where we actually used XSEDE. (DEIDENTIFIED) We had trouble using the java interface on Linux and would have needed direct ssh login. At the same time (but after our XSEDE application), a large condor campus pool was established at our campus (DEIDENTIFIED).
- Since we were already proficient in condor and had local support, as well as access to quasi unlimited CPU hours there, our focus shifted to using the campus condor pool as primary computing resource.
- We think that XSEDE is a great idea, but making more local training available would have been helpful for us. What is your policy in integrating locally constructed condor pools into the network?"
- Could link better with DOE for software testing purposes.
- its an excellent program and have found it to be very useful if not essential for our research work and project. I would like more open access information on how to apply, and what's available more easily available. I was sheparded through the process with a veteran user and if it had not been for him (DEIDENTIFIED) not sure I would have even tried to do so.
- I have not yet used my XSEDE allocation because I am balked down with teaching during the regular semester. I'd like my allocations / accounts left open so work can be done during the summer. I'm used to Gridchem. I need to use GAUSSIAN 09 on Blacklight
- Help for very large simulations like Blue waters system.
- "Kraken is an amazing machine. I am so glad to have access to it. The folks at NICS do a fantastic job, IMO. If they could make it more responsive at the command line (again, Lustre...) it would be great.
- I think XSEDE is probably woefully underfunded. Our computational infrastructure in the US is lacking compared to other countries. Thankfully machines like Blue Waters are still being built - but we should have more."
- Significantly increase the amount of computing power. Allocations of the scale of 200-500 Million core-hrs should not be difficult to get from this resource, if one was to scale from 5 years ago - but they are apparently impossible to come by. I would argue that not enough attention is being paid to delivering large scale compute resources through XSEDE.
- Job queuing time is long.
- It would be helpful to have a description/listing of resources/services associated with each discipline.
- should be sustainable resource with computers and staff. Staff should not be treated as migrant farm workers.
- The online documentation needs to be more comprehensive. It's frustrating going through six levels of links to find the information one is after.
- Because XSEDE is NSF funded, XSEDE should consider giving NSF-funded research might be given priority on NSF funded HPC resources. Also, data management tools and techniques are under-emphasized and under-supported on XSEDE in my opinion.
- demonstrate technical components to end-users how to use the facility. content-based training.
- I filled out this survey to make this one comment. [DEIDENTIFIED] The allocation process should not be so rigid with respect to required CPU hours. Science does not always proceed in a predictable manner and it can be difficult to accurately predict computing needs at a very precise level ahead of time.
- XSEDE is vital to researchers involved in computational science...especially at the large scale. I'm not entirely sure how we enable computational research for the more unique needs of certain users (MatLab, Hadoop, Windows, etc)...but we CANNOT do it by diverting resources away from those doing classical research. There is still a huge demand for HPC cycles that cannot be met by most campuses and thus, XSEDE is heavily relied upon to meet those needs.
- I would suggest that the awarded XSEDE SUs to be more flexible because unexpected complications always occur throughout the course of research.
- "Science impact needs to be given greater weight in allocations decisions.
- Subject expertise of some reviewers also leaves room for improvement."

- Seems like it could be a valuable service if provided test code worked in the first place, or if support responded at all.
- Hope to have a better GUI terminal on the portal website.
- "The server is very slow, even just open a few line of text files. I would highly recommend a major upgrade on the servers."
- If there are computational resources that are not used at its optimal level for a lack of users, it would be advisable to ease the award process for those resources.

Theme #6- Process oriented suggestions and comments

No comments were available for this theme.

Theme #7- Invalid comments and suggestions (Not applicable)

There are **76** additional comment responses in this category that did not provide any specific comments or suggestions**.**

Theme #8- Multiple references for suggestions and comments

- I really appreciate the efforts that building and maintaining such a great resources. It becomes an essential part of my research and study. I want to thank NSF for the investment and I really appreciate it. It will be better if NIH and NASA can be involved and building up more computational resources.
- I cannot emphasis enough how valuable this resource is to me. I am a NSF fellow, and I do not have the computer capabilities here at my own institution that are as powerful to run the kind of simulations I need to for my research. In addition, the process of submitting a request for hours on XSEDE as my own PI has been an extremely valuable experience as a graduate student.
- Easier and more transparent allocation process of long term data storage services
- I've been using Trestles for the past two years and it has been a horrible experience. Half the time I submit a job, it crashes within a couple of seconds. It seems there are communication issues between the nodes. When I contact SDSC support, they just restart nodes without finding the cause of the problem. Improving the reliability of Trestles would make my experience with XSEDE perfect.