Argonne
NATIONAL LABORATORY

2009 ALCF INCITE User Survey

Summary Report

February 2009

2009 ALCF INCITE User Survey Results

Methodology: The 2009 INCITE User Survey was distributed via a link in an email to Principal Investigators on December 15, 2009. PIs were asked to either complete the online survey themselves, or to forward it on to one individual on their team who was best prepared to offer feedback on experiences with the ALCF.

Results and notes:

- Twenty individuals completed the online survey.
- Response rate of 2009 INCITE PIs (or his/her designee) was 71%.
- Not all individuals answered all questions.
- 95% of respondents rated their overall satisfaction with the ALCF as above average.

Actual survey questions and responses appear below:

1. Was 2009 your first INCITE year with the Argonne Leadership Computing Facility?

Total Responses	20
Yes	15.0% (3)
No	85.0% (17)

2. Did you or a member of your team attend an ALCF-sponsored workshop in 2009?

Total Responses	20
Yes	30.0% (6)
No	70.0% (14)

3. The ALCF hosted several workshops this year, including a "Getting Started" workshop, a Performance workshop, a Scaling workshop, a Porting & Tuning workshop and an INCITE Proposal Writing workshop. If you attended one or more of these workshops, please rate the effectiveness of the workshop(s) in addressing the following topics:

	Excellent	Above Average	Average	Below Average	Poor	N/A	Rating Average	Response Count
Introducing me to ALCF staff and services	83.3% (5)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	16.7% (1)	5.00	6
Getting my project up and running	33.3% (2)	16.7% (1)	0.0% (0)	0.0% (0)	0.0% (0)	50.0% (3)	4.67	6
Providing relevant and necessary training	60.0% (3)	0.0% (0)	20.0% (1)	0.0% (0)	0.0% (0)	20.0% (1)	4.50	5
Providing access to experts	80.0% (4)	0.0% (0)	0.0% (0)	0.0% (0)	0.0% (0)	20.0% (1)	5.00	5
Answered question								6
Skipped question								16

Please provide any comments:

- I have found Vitali Morozov's presentations regarding node performance issues to be very valuable.

4. Please share comments about workshops you attended, and/or provide topics for future workshops:

- The training on performance tools and debugger tools is very useful.
- [Getting Started workshop was great, didn't attend performance and tuning workshops.]
- I participated in the Incite Proposal Writing Workshop via the phone and internet. This workshop was very helpful in preparing our group's progress report for 2009 and resource request for 2010.

5. The Catalyst Program provides you with a one-to-one partnership with a dedicated ALCF staff person (a performance engineer or computational scientist) to maximize your use of ALCF resources. Our catalyst team: Charles Bacon, Ramesh Balakrishnan, Graham Fletcher, Kumar Kalyan, Ray Loy, Vitali Morozov, James Osborn, Scott Parker, Katherine Riley, Nick Romero, Tim Williams. Based on your experiences this year with your catalyst, please use the scale provided to rate the following:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A	Rating Average	Response Count
Having access to my catalyst has	47.4% (9)	31.6% (6)	5.3% (1)	0.0% (0)	0.0% (0)	15.8% (3)	4.50	19

benefited my project.								
My catalyst is able to assist me with issues I bring to his/her attention.	36.8% (7)	42.1% (8)	5.3% (1)	0.0% (0)	0.0% (0)	15.8% (3)	4.38	19
I have adequate access to my catalyst.	47.4% (9)	21.1% (4)	15.8% (3)	0.0% (0)	0.0% (0)	15.8% (3)	4.38	19
My catalyst is prompt and professional in our dealings.	52.6% (10)	26.3% (5)	5.3% (1)	0.0% (0)	0.0% (0)	15.8% (3)	4.56	19
Answered question								19
Skipped question								3

Please provide any comments:

- You folks are terrific, it is just that I do not need these types of services for my work, as I am doing operating system development.

- My primary catalyst was Scott Parker. Scott took the time to fix some IBM assembly code for our central computational kernel that had worked on BG/L but did not work on P. This gave us a 10-15% boost in performance. In addition, Scott did some careful analysis regarding communication performance and identified that our largest problems were finding more time communicating than we'd experienced in the past. We identified that the issue was related to our mesh partitioner and, after a summer student had addressed the problem in the partitioner, we gained 2x for our largest computations.

  Scott was also extremely helpful in assisting us with resource scheduling.

  The catalyst team as a whole was highly competent and enthusiastic. Whenever a new and interesting problem was reported I would get numerous responses with suggested avenues to pursue. (Another major issue addressed by the team was a problem in IBM's implementation of mpi_comm_dup, which was consuming too much memory, scaling as P per processor, and thus prevented us from making scaling runs at P > 100,000. That problem has now been resolved and we are seeing ~80% efficiency on P=160,000.

- We got efficient supports in the pass year.

- In my view, the Catalyst Program is essential when dealing with bleeding-edge computing resources of the size of Intrepid.

- My experience with the team in 2008 was very positive, but in 2009 I was no longer involved in the research project due to a change in employment.

- Our group's catalyst is James Osborn. He is absolutely outstanding, and has played a very important role in the success of our work at ALCF. The catalyst program in general, and James in particular, are superb.

- Our application is well optimized for running on a variety of machines, and machine sizes, and tuning it specifically for Intrepid is something I have avoided. Intrepid-specific issues have been dealt with promptly by our catalyst who has always been helpful when needed.

6. ALCF provides user support, via email and phone, through our service desk. In regard to user support you have received, please rate the following:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A	Rating Average	Response Count
The ALCF staff provides accurate, complete assistance and/or answers to my questions.	63.2% (12)	31.6% (6)	0.0% (0)	0.0% (0)	0.0% (0)	5.3% (1)	4.67	19
The ALCF staff is courteous and professional.	73.7% (14)	21.1% (4)	0.0% (0)	0.0% (0)	0.0% (0)	5.3% (1)	4.78	19
Assistance from the ALCF staff is prompt.	57.9% (11)	31.6% (6)	0.0% (0)	5.3% (1)	0.0% (0)	5.3% (1)	4.50	19
Online supporting documentation is helpful.	44.4% (8)	38.9% (7)	5.6% (1)	5.6% (1)	0.0% (0)	5.6% (1)	4.29	18
ALCF support is available when I need it.	50.0% (9)	33.3% (6)	5.6% (1)	5.6% (1)	0.0% (0)	5.6% (1)	4.35	18
Answered question								19
Skipped question								3

Please add any comments:

- Tremendous support.
- The online documentation is a little haphazard compared with that at, e.g., NERSC.
- The wiki is very helpful.
- One of the members of my project submitted the following comment: "The account creation time by ALCF is particularly long,

more than 4 weeks due to stringent requirements on various documentations. Not sure if it is only for me as a foreign national.
- I called ALCF support and left message 3 days ago, still not response
- I always start by searching the web documentation when I have an issue. However, the information is split between the main alcf pages and the Wiki BGP documentation. I think it would be easier for the users to consolidate all the documentation into the Wiki...
- [online presentation docus are not updated.]
- James Osborn provides the bulk of support for our group. However, when I have contacted other user support staff by phone or email, he/she has always been very helpful.
- Account creation for foreign nationals can be quite long.
  A status of request for the PI would be appreciated to be aware of any missing information not provided by mistake by the requestee.
- There is no "official" support in evenings and weekends. This sometimes results in long delays in fixing issues.

7. If you participated in a User Call(s), please share your feedback:
   - They called back in time and gave clear and useful support
   - The user calls are a good way to grab the attention of several ALCF staff members and get your problems resolved very quickly.
   - [informative, but few users showed up]
   - I have not participated in these calls.
   - I participate regularly and find them useful

8. Please rate each of the following resources you accessed through the ALCF this year:

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	N/A	Response Count
The performance tools I accessed were helpful.	21.1% (4)	31.6% (6)	5.3% (1)	0.0% (0)	0.0% (0)	42.1% (8)	19
The debuggers I accessed were helpful.	10.5% (2)	26.3% (5)	5.3% (1)	0.0% (0)	0.0% (0)	57.9% (11)	19
The libraries I accessed were helpful.	22.2% (4)	33.3% (6)	5.6% (1)	0.0% (0)	0.0% (0)	38.9% (7)	18
Answered question							19
Skipped question							3

9. What other tools should we provide?

   - One of the members of my project submitted the following response.

"I would really like to see a resource manager that allows interactive sessions on Intrepid. Currently Intrepid uses Cobalt, and it doesn't provide all the functionality offered by SLURM, which we use on the Blue Gene/L and Blue Gene/P systems at LLNL. With SLURM, my development work is much faster because I can test changes I make to the tools I build quickly. While Cobalt (and cqsub) are fast, they aren't interactive, and I have to wait for a partition to boot each time I start a job.

Further, I'm working on tools that use MRNet, and it would be nice to be able to launch MRNet as a tool daemon on the I/O nodes on BG/P. This is something we can do at LLNL with SLURM and LaunchMon, but not at ANL through Cobalt. We've received a lot of inquiries about running tools like STAT on Intrepid and other BG machines that use Cobalt, but we can't get it running there without a lot of work because the infrastructure is not in place."

- The ability to run MPI programs on the front-end would be helpful. I have had to make many changes to our post-processing code because of the lack of MPI on the frontend. Post-processing can use only one MPI process, or a few, depending on the available resources, but reuses much of the same source code as the application, all of which assumes that it is an MPI program. Running a 1-process MPI program to perform post-processing on Intrepid is not efficient.

  Transferring large files to/from ALCF would be helped with the support of the BBFTP program (a client/server file transfer program). This would require the server part of BBFTP to be running on the front-end (login) machines.

- For debuggers I really only parse the small core files.

10. What is your level of satisfaction with scheduling and turnaround of your jobs?

Total Responses	19
Very Satisfied	73.7% (14)
Satisfied	21.1% (4)
Neutral	0.0% (0)
Very Dissatisfied	0%
Not Applicable	5.3% (1)

Please share comments:

- I am very satisfied with the turnaround time, especially for large core count jobs.

- The scheduling and turnaround time of jobs run under our Incite grant has been excellent. We were also granted a Director's Discretionary account in which all jobs run at low priority. This account has been extremely helpful in accelerating our research. By choosing the jobs we ran at low priority appropriately, we were able to get quite reasonable turnaround times. Thus, I consider the turnaround times for jobs run under our Incite and Director's Discretionary accounts very impressive.

- 24 hours of scheduled downtime once a week seems excessive. If this is being used for whole-system production runs or other code benchmarking I can understand it, but if it is really for maintenance it seems very high.
  This has not impacted me, I have very low usage, but high volume users I expect would like extra access time.

- Since we are stationed in Europe, the time frame reserved for prod-devel queue is not adapted for our schedule (We have a 7h differential making the queue available to us only late in the afternoon).

11. Was your storage allotment sufficient to meet your needs?

Total Responses	20
Yes	95.0% (19)
No	5.0% (1)

Please add any comments:

- The storage (backup system) is very useful.

- The home file system does get pretty full. The fact that deletions really take effect only after a week (due to the snapshots) seems to me to be a bad feature of gpfs. But the snapshots are very useful.

12. What other resources could we provide that would be helpful to you now or in the future?

Total Responses	15
Data Analytics?	33.3% (3)
Visualization Capabilities?	88.9% (8)
Tape?	44.4% (4)

Please list others:

- Eureka works very well.

- At present, we are moving files that require long-term archival storage from ALCF to other locations. Greater long-term archival storage at ALCF would be convenient, but the current mode of operation does not cause a significant problem.
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13. Overall, how would you rate your experience with the Argonne Leadership Computing Facility in 2009?

Total Responses	20
Excellent	75.0% (15)
Above Average	20.0% (4)
Average	5.0% (1)
Below Average	0
Poor	0

Please share any ideas or comments you have for ways we can improve our services to you.

- The ALCF provides a top-notch environment with unique resources. No other center comes close. Great job!

- I would like to thank the ALCF staff for the outstanding support we received this past year. We would not have been able to carry out the simulations and achieve the scientific results we did without their support.

- I did system reservation several times last year (full system), and got some jobs done during the reservation. We made big progress in our project with the help of ALCF resources and support.

- Please note that "Average" is in comparison with a number of very responsive computing facilities, all of which I would rate as "average". The rating for all of these centers could also be "excellent". Please change the survey in the future so as not to mix relative and absolute options.

- I still find that moving large amount of data in and out of HPSS is too slow, even when connecting from gfs1. It would be great if it could be sped up. Maybe by allowing multiple streams or connections?

- ALCF is absolutely outstanding in the quality of the hardware it provides, the quality of its user support, and its operational ground rules. To maintain its position as a leadership class facility, the ALCF will need to upgrade its hardware over the next one to two years. A natural upgrade would be to a Blue Gene/Q, and our group would strongly welcome that choice. A BG/Q or its equivalent would

vastly expand the science that our group, and I am sure many other groups could do.