



ARCHER User Survey

2014



1. Document Information and Version History

Version:	1.0
Status	Final version
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Reviewer(s)	Alan Simpson, Jo Beech-Brandt

Version	Date	Comments, Changes, Status	Authors, contributors, reviewers
0.1	2015-01-14	Initial draft	Andy Turner
0.2	2015-01-29	Added summary table and actual questions	Andy Turner
0.3	2015-01-27	Reviewed text	Alan Simpson
0.3	2015-02-05	Added comments from survey	Andy Turner
1.0	2015-02-25	Finalised formatting	Andy Turner

2. Description of the Survey

The ARCHER User Survey was opened on 8 December 2014 and closed on 7 January 2015. 153 responses were received from ARCHER users. The survey asked for ratings (on a scale of 1 to 5) with the following questions:

1. Please rate your overall experience of the ARCHER Service (required) [Very Unsatisfied (1) – Very Satisfied (5)]
2. Has the ARCHER hardware configuration met the requirements of your research? (required) [Not met any requirements (1) – Exceeded requirements (5)]
3. Has the software on ARCHER met the requirements of your research? (required) [Not met any requirements (1) – Exceeded requirements (5)]
4. If you have used the ARCHER helpdesk, please rate your experience [Very Unsatisfied (1) – Very Satisfied (5)]
5. If you have used the ARCHER documentation, did it provide the information you required? [Did not provide the information I required (1) – Provided all the information I required and more (5)]
6. If you have used the ARCHER website, please rate the quality of the content and ease of navigation [Very poor (1) – Excellent (5)]
7. Please rate your experience of any ARCHER Training you have used (either online or face-to-face)? [Very Unsatisfied (1) – Very Satisfied (5)]
8. If you have attended any Technical Forum Webinars, did you find the session worthwhile? [A complete waste of time (1) – Extremely interesting and useful (5)]

Only the first three questions were compulsory for all survey responders but over 92% of responders also provided feedback in the some of the optional questions. Users were also provided with the opportunity to offer comments or suggestions under all of the above headings and provided with space for any other comments or suggestions at the end of the survey.

The survey was constructed using Google Forms and embedded directly into the ARCHER website.

3. Selected Quotes

The following quotes reflect the tone of the majority of responders to the survey with regard to the ARCHER service:

“best machine around. I have access also to Titan and Mira, and ARCHER is by far the best”
“The staff I have interacted with via email have been top-notch. Very knowledgeable, with great communication.”
“I am very happy with the service they have provided, and my research would have been severely slowed down if ARCHER had not been available.”
“ARCHER is an excellent service, thank you all very much!”
“Our model now runs so fast on ARCHER (as compared to HECToR) that our main problem is moving the output off so as not to exceed the memory allowance (I mean this as a positive!)”

The old argument between having accelerators or not as part of the national service was also evident:

“Would be great if there are GPU nodes”
“Please don't go down the accelerator route until someone (anyone!) has code that actually runs on X thousand GPUs...”
“[Please provide] GPU, Xeon Phi or other acceleration.”
“Please stick to homogeneous hardware.”

Quotes on the helpdesk (which also reflect on the centralised CSE team) echo the extremely high ratings for this aspect in particular that are shown below:

“Extremely good: my questions are usually very technical and the information I get back is invariably very strong.”

“I would like to emphasize the satisfactory experience of helpdesk team. Their response is always fast, efficient and trying to help as much as they can. “

“Not only very helpful but also friendly, it is a pleasure to contact you!”

“I have always had prompt, courteous responses, with quick resolutions to my reported problems/questions. They have kept me informed in cases where the solution would take some time.”

A full list of the comments received can be found in Section 5.

4. Ratings

All questions asked responders to rate their satisfaction with each particular aspect of the survey on a scale of 1 to 5 with 1 representing “Very Unsatisfied” and 5 representing “Very Satisfied”.

Table 1 summarises the ratings for each aspect and reveals the all aspects of the ARCHER Service are rated highly by users.

Service Aspect	Total responses	Mean Score (out of 5)	Median Score (out of 5)
Overall Satisfaction	153	4.4	4
Hardware	153	4.1	4
Software	153	4.0	4
Helpdesk	129	4.5	5
Documentation	142	4.1	4
Website	144	4.1	4
Training	81	4.1	4
Webinars	41	3.6	4

Table 1: Summary of scores for different aspects of the ARCHER Service

As can be seen from Figure 1, the overall satisfaction with the ARCHER service is extremely high with no responders rating the service below 3 on a 1-5 scale from “Very Unsatisfied” to “Very Satisfied”. The mean rating is 4.4 and the median rating is 4.

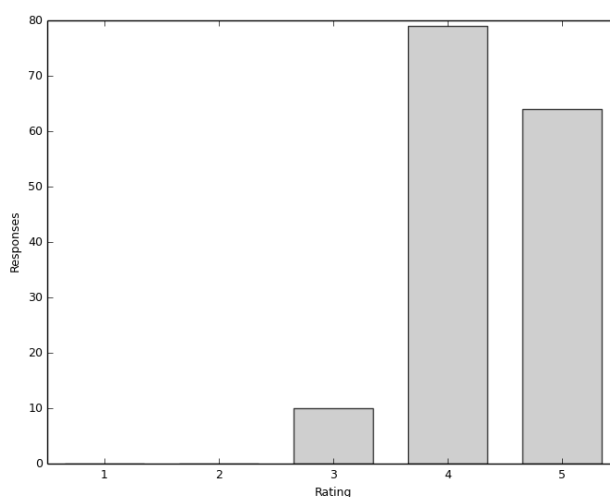


Figure 1: Distribution of scores for overall satisfaction with the ARCHER service (153 responses in total).

Similarly, for the hardware and software (Figure 2 and Figure 3 respectively), the overall satisfaction with the service is high with only one user rating the hardware below 3 and three users rating the software below 3. The single rating of 1 (“Very Unsatisfactory”) for the software on ARCHER was not accompanied by any additional comments and the responder indicated that they did not want to be contacted about their response to the survey. The mean rating for hardware is 4.1 (median is 4) and the mean rating for the software is 4.0 (median is 4).

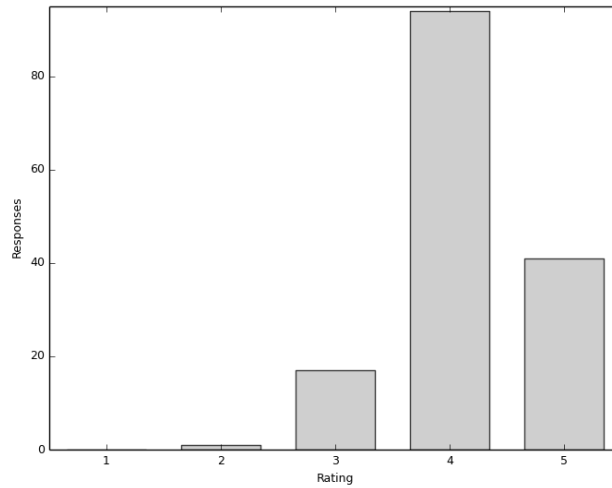


Figure 2: Distribution of scores for satisfaction with the ARCHER hardware (153 responses in total).

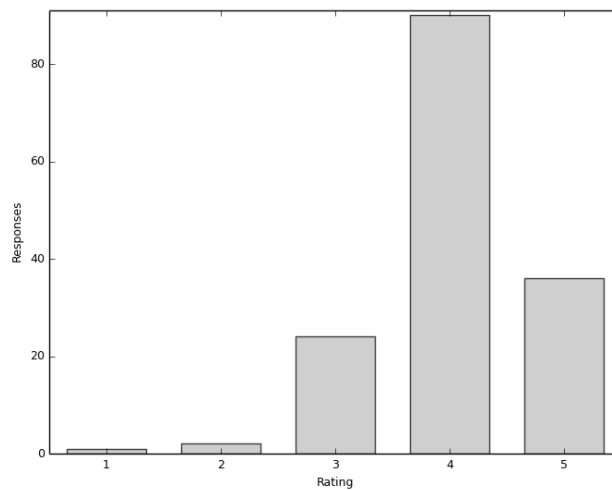


Figure 3: Distribution of scores for satisfaction with the ARCHER software (153 responses in total).

The distributions of ratings for the ARCHER Helpdesk () show that this is the highest rated aspect of the ARCHER service out of those surveyed with a mean rating of 4.5 (median is 5). Both of the users who left the two ratings of 2 on the helpdesk indicated that they did not wish to be contacted regarding their responses to the survey. These high ratings, in particular, are testament to the staff that work on both the frontline helpdesk and to those who answer the user queries from the Service Provision, CSE and Cray teams.

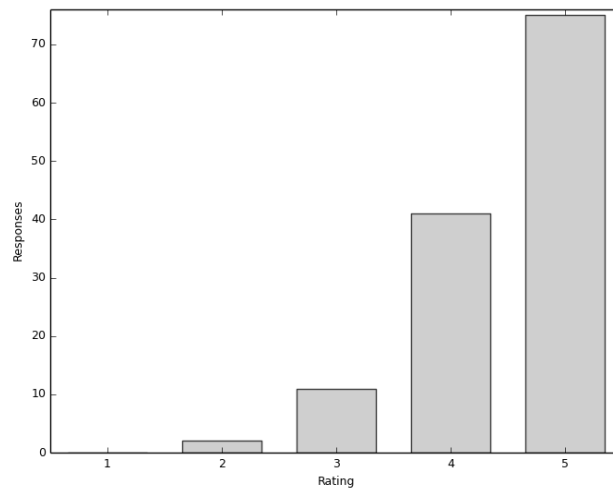


Figure 4: Distribution of scores for satisfaction with the ARCHER helpdesk (129 responses in total).

ARCHER documentation (Figure 5, mean = 4.1, median 4), website (Figure 6, mean = 4.1, median 4), and training (Figure 7, mean = 4.1, median = 4) all show the same high level of satisfaction as that shown for the overall service and have high respondent rates. The results for ARCHER training are consistent with the course survey results presented in the CSE Service quarterly reports.

The Technical Forum webinars (Figure 8) have a much lower responder rate (possibly due to the fact that the technical nature of the webinars is of interest to a subset of ARCHER users) and also shows a slightly lower satisfaction rating (mean = 3.6, median = 4). Although this is still above 3 and only 1 user rated the webinars below a value of 3. From the comments we can see that the lower rating is due to the webinar software used (Blackboard Collaborate). The CSE Service is currently evaluating other webinar solutions to see if there is a better option available.

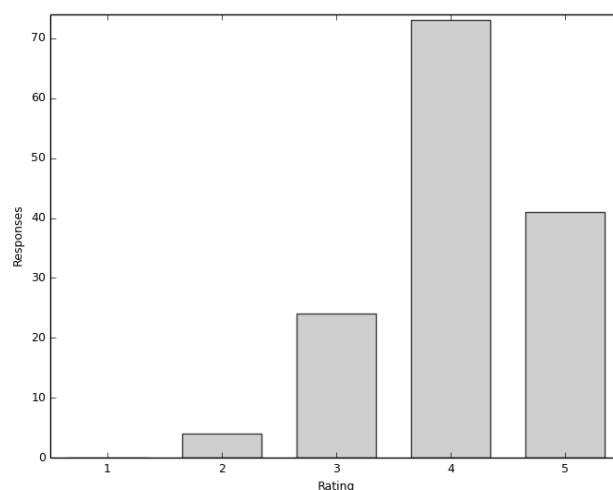


Figure 5: Distribution of scores for satisfaction with the ARCHER documentation (142 responses in total).

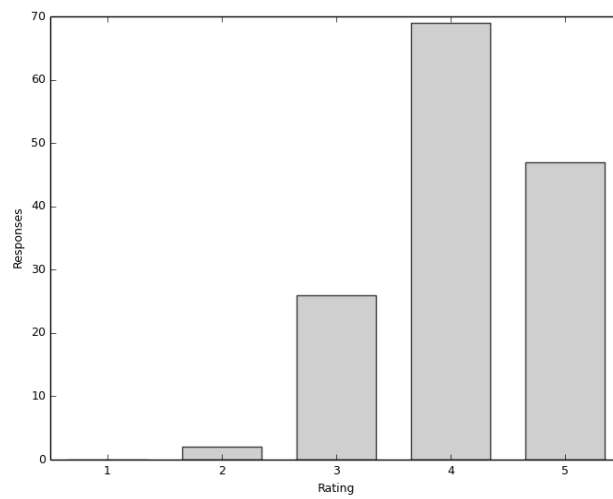


Figure 6: Distribution of scores for satisfaction with the ARCHER website (144 responses in total).

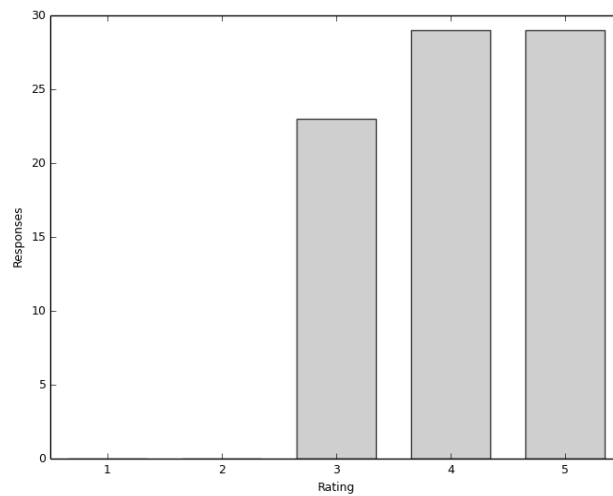


Figure 7: Distribution of scores for satisfaction with the ARCHER training (81 responses in total).

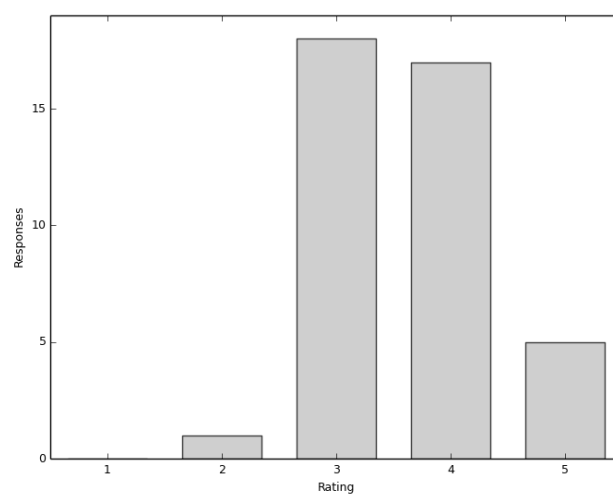


Figure 8: Distribution of scores for satisfaction with the ARCHER Technical Forum webinars (41 responses in total).

5. List of Comments

The number in brackets indicates the ID of the respondent.

Hardware

- Actually, we have been so pleased, that there are no comments to make. (34)
- Very fast processors + very fast interconnect. (58)
- Very happy with the RDF. (83)
- Performance is excellent compared to other systems (96)
- Intel Xeon Phi ! (100)
- The scheduler is a bit odd. It seem to want short jobs with many nodes. Jobs requesting ~10 nodes seem to stay in the queue forever while those with ~50 nodes get higher priority. This seems like odd logic since it surely must be easier to use all available nodes if you prioritise jobs with few nodes over jobs with many nodes. (101)
- Perhaps two separate queues, one for ""big"" jobs and one for ""small"" jobs is the way forward. "
- GPU, Xeon Phi or other acceleration. (104)
- an Hybrid version CPU-GPU would be interesting, or if there is already an hybrid partition available on ARCHER it would be good to better advertise it. (105)
- None. The machine is ideal for my purposes. (108)
- hardware has been fine. (111)
- Excellent choice of hardware providing great performances for both MPI and MPI-OpenMP executable (113)
- I believe the use of parallel resources with many small jobs (rather than a large single MPI process) is not well adapted to ARCHER. The approach using many small jobs has many advantages, and I think it will eventually become more important than the single MPI process approach. I think this should really be taken seriously in future supercomputers. (114)
- More memory is always useful (115)
- Memory per node is too low; (125)
- Good and stable environment, no problems. (133)
- Accelerators would be interesting (138)
- The hardware is alright but if the IvyBridge CPU are also allowed with OpenCL drivers, which allows an alternative programming model for multi-core programming. Moreover it would have also helped existing OpenCL code to be run. (141)
- My research principally requires <10000 cores per job and never goes above 30000 cores. My understanding is that the average archer job is relatively small, at around 100 cores. As clusters of around ~1000 cores are a lot cheaper per core than very large clusters such as ARCHER might there be an argument in the future for purchasing a few smaller (i.e. cheaper) clusters to get the many small jobs running (but with larger "bandwidth", as it would be possible to buy more cores) coupled with a more modest main computing cluster which could be used both for the smaller jobs (but in a less cost efficient manner) and those larger jobs which can only be run on a large system? (143)
- Noticed that sometimes the queues had long wait times. (148)
- Our model now runs so fast on ARCHER (as compared to HECToR) that our main problem is moving the output off so as not to exceed the memory allowance (I mean this as a positive!) (150)
- The architecture is just perfect for the purposes and need of scientists involved in Computational Materials Science, like me. Maybe not for people dealing with lattice QCD. (151)
- A set of fat nodes (eg 2048) with 8Gb/core RAM would be very helpful for memory-intensive computations like large-scale 3D numerical simulations. (152)
- It is concerning that the recent upgrade is currently expected to be the last investment in the ARCHER system. Failure to invest in scientific computing will result in an inability to compete with other countries and affect our ability to attract and retain high calibre researchers. (153)

Software

- Needed an additional (non-default) setting for the HDF5 library and it was added quickly. (27)
- ARCHER has a very complete set of software for computational material science. I made a suggestion for additional software few weeks ago and it was accepted, so I am very satisfied with the service. (33)
- I use WRF and it's always been straightforward and works well. (37)
- Mainly running our own programs, happy with the selection of compilers. (81)
- Compiler environment modules are easy to use, allowing for fast development and less messing around with link lines. Intel compilers are greatly appreciated. (96)
- I still find profiling relatively tricky and getting files on and off could be improved (although possibly not and still retain security). (20)
- The waiting time is too long....Hoping reduce the time in queue. (41)
- Although ARCHER meets my requirements in general, recently there have been long queues. This has specific problems for long runs, where each individual job is a continuation of a previous run. Many times my runs have sat in the queues for significant amounts of time, and so, although each job completes faster than on hector, the total throughput per day is not more. (70)
- The queuing system is often inefficient and slow. (72)
- I use foam-extend-3.1, at one point some modules that my install depends on were removed without notice. This affected my own and colleagues use of the service. (80)
- A change to the setup in the last year did break the OpenMPI API at some point in the last year, leading to mysterious MPI errors until code was recompiled. This could have been communicated more clearly.
- The packages available for Python (netcdf, scipy...) have been a bit buggy. (101)
- Also, the Cray compilers have proven to be a worse choice for my code than GNU or Intel has, since it refuses to compile with -O2. This may of course be a problem with Cray and not necessarily ARCHER. (101)
- Problems with the module system (eg module load/unload commands failing on switching PrgEnvs) (102)
- I am using a lot GROMACS, scripts and tutorial for the latest versions would be welcome to fully use the capabilities of such software. Or at least, do a workshop to let the users to communicate on their own experience. (105)
- I also think that it is not completely clear in term of consumption of resources. It is for the moment possible to see the overall consumption for the project but I have the impression that it is not possible to see the consumption per user (when a project is shared by several users). All the big Tier 0 systems has this functionality and it would be very appreciated to have the same on ARCHER. (105)
- None. The machine is ideal for my purposes. (108)
- Helpdesk have installed most things I have asked for. (115)
- Support for single-core workloads is not very satisfactory. In this context, support for CRAY's cluster compatibility mode would also be nice to have. (123)
- Please provide the TotalView debugger. (130)
- All fine. (133)
- I'm not sure if this is hardware or software, but my main problem has been running post-processing on the serial nodes. The run time is very variable so that jobs can be stopped after running out of time even if I request as much as 5 times what it would normally take. I now do this work on th parallel nodes, but this is costing me extra resources. (137)
- I'd also value more predictability how long a job will be queuing for - sometimes my jobs run within 10 minutes, sometimes they are queuing for 24 hours. (137)
- Python support is quite good overall, however there is no good solution for profiling Python C extension modules, which would be very helpful. (138)
- Some few more open source profiling and debugging tools would have provided more alternatives in development. (141)
- You could consider to install other packages free for academic use, such DFTB+ and (151)

- Matlab (152)

Helpdesk

- excellent support for compiling code and dealing with compiler issues following software and compiler updates (8)
- friendly and prompt service (25)
- Extremely good: my questions are usually very technical and the information I get back is invariably very strong. (27)
- I would like to emphasize the satisfactory experience of helpdesk team. Their response is always fast, efficient and trying to help as much as they can. (32)
- Really good and efficient! (33)
- Again, very satisfied (34)
- Got help installing the latest version of WRF very quickly and efficiently. (37)
- I don't remember - but that means that if I've used them, I've been completely satisfied. (46)
- Very helpful and prompt response to queries. (51)
- I have always had prompt, courteous responses, with quick resolutions to my reported problems/questions. They have kept me informed in cases where the solution would take some time. (60)
- I have used the help desk several times and have found the staff to be consistently fast, helpful and friendly. (62)
- Always very quick & helpful. (74)
- Quick response, knew what they were doing. (94)
- Quick and helpful replies (101)
- Fixing ParaView took EPCC a long time. (75)
- Quick response rate, and they have been highly helpful in our efforts to try and get new codes deployed. (108)
- Never had to use it really. (111)
- Usually helpdesk are helpful! (115)
- People at the help desk were always helpful, took the time to look at issues and suggest solutions. Keep going. (126)
- I haven't always received a response to my queries to the help desk. (127)
- I once had a problem, but thanks to the very helpful Helpdesk I was able to resolve it quickly. (128)
- All fine. (133)
- Always a quick and helpful response. (137)
- Not only very helpful but also friendly, it is a pleasure to contact you! (140)
- The service is excellent. Perhaps some consideration could be given to creating a web-based, searchable database of user issues and responses, to prevent duplication of effort, as presumably there are a lot of instances of the same questions being asked more than once. (143)
- Very fast turn around. Provided swift helping in getting me up and running when I first activated my ARCHER account. (146)
- Very good helpdesk service (147)
- Poor service from other sites/facilities makes the ARCHER Helpdesk stand out. (149)
- They could not be any better (151)

Documentation

- Pretty thorough and up-to date, good searchability (25)
- Regarding the more rigorous technical descriptions, you have clear examples. So when you have to try something new, you are not wasting your time with trials and errors. (32)
- The documentation is fantastic. I really on it habitually. The content, examples, completeness, and organization of material is far superior to anything i have available

- locally, or elsewhere on the internet. The material is tuned very well for what users need to get their jobs going and tune them. It has quality and reliability of content. (60)
- The documentation on the website for compiling Gromacs and Plumed was excellent and allowed me to compile the two easily. One way to improve the documentation would be to be a bit more descriptive on why certain steps are needed or why certain flags are used. (67)
 - In particular the documentation of serial queues was useful as not intuitive to use (as having to recompile code) (77)
 - Great with compilation instructions for some software. (94)
 - I'm not sure why I cannot transmit file using "scp" command from other super computers to ARCHER. I have followed the instruction provided on the websites and documentations. (41)
 - I sometimes found the ARCHER documentation a little difficult to follow due to the sheer amount of information available and I sometimes had to resort to using the help desk instead. That said, the documentation is excellent for reference. (62)
 - I had an issue running OpenMP Fortran code on Archer. Apparently there is an issue with aprun incorrectly pinning all the openMP process on one core when compiling with Intel ifort. This was not mentioned in the Archer docs but in docs for similar Cray machines. There is a number of sections with TODO etc. which seem to have been in this state for some time. (81)
 - generally very helpful, but you can find plenty of errors in the example scripts, which may be very troublesome for beginners. (82)
 - Documentation of the modules is poor. I'm not talking about how to use the module commands but about the description of the various softwares accessible through the module system (basic description, version, interdependency, recommendation). (126)
 - All fine. (133)
 - I often don't know whether what I want will be in the User Guide or the Best Practice guide - could they be combined, or more guidance be given on where to look? (137)
 - More extensive documentation on profiling would be helpful. (138)
 - Documentation is clear and logically ordered. (151)
 - It would be helpful if some documentation could be added on some of the software available on ARCHER such as Code_Saturne. (154)

Website

- I really like the usage graphs. They are actually helpful. (28)
- The web site is very well organized with well categorized menus. The layout and colors are easy to read and navigate. The information is completely reliable for my purposes. (60)
- Very good overall. (75)
- Useful to have the service status (80)
- All websites are not suitable for all users. I found the website a bit difficult to navigate, but this may be a personal issue. (34)
- I think the website can be made more user friendly (71)
- Better than HECToR but some things still hard to find, such as dates/deadlines for upcoming eCSE calls. (74)
- I find it difficult to navigate between help pages, documentation, and login to account information. Not all are accessible from the same (front) page. (93)
- Configuration of projects is not intuitive in SAFE: no way to guess what options will be available from which sub-pages. (102)
- I really appreciated the page for the calculation of the kAUs but it is not so easy to understand. For example, I used to made a mistake in term of nb of cores and nb of nodes... You have a list to give the number of cores used but I do not understand why it is useful because anyway it is necessary to give the overall amount of cores needed... (105)
- Not perfect, but it meets my basic requirements. I am wondering whether the disk usage statistics and kAU consumption is kept as up-to-date as it could be. (108)
- Website is good - I can find most things I need. (111)
- The "safe" website is pretty atrocious, and could do with a complete rebuild. (115)

- There should be a link to the SAFE login page from the ARCHER front page (130)
- The project and user management web interface is not very user friendly and could certainly be improved. A valid SSL certificate would be a good starting point! (133)
- SAFE is still somewhat awkward to navigate. (138)
- Useful, particularly in the transition from HECTor to ARCHER (147)
- I do find it difficult to navigate. I also found the HECToR website, which was similar, difficult to navigate. I cannot put my finger on it, but each time I visit, it seems like the first time and I have to hunt around for information. (149)
- Maybe you could consider to display in a more visible position the link to "Login to ARCHER SAFE". Dark colours in the main page are a bit (151)

Training

- Great for new students. Delighted to see a link with Software Carpentry emerge. (27)
- Not done anything at EPCC but was very happy with the team that came to York to do an introductory course here. (74)
- The tutors have always been very supportive. (75)
- Attended training course at Daresbury which was excellent (80)
- Online is fine. Edinburgh isn't all that convenient to get to for face to face training. (20)
- I would be very interested to better understand MPI processes, OpenMP, GPU, etc .. but to better launch calculations of my programs; For example, I am using gromacs and I would be interested to pass a half day with other gromacs users on ARCHER to try to identify the best way to launch simulations in function of the entry parameters, the size of the system, etc .. So, it would be very interesting to identify group of people working on a dedicated program and perform some call focused on this group of people to discuss their use of the program and understand how they use the program and what they want for the future. (105)
- I have not followed any training on ARCHER, as I already have a strong background. (108)
- Never had to use any of the training. (111)
- The course presenter was pretty knowledgeable, but it was a bit difficult to translate into practice. Not enough time was allowed for practical sessions. (115)
- Some webinars have been very useful, especially when I was getting started. (137)
- I would like to see more face-to-face training on advanced topics. (145)
- Not used, but encourage continued investment in this. (149)

Webinars

- The software required to participate in these forums is quite terrible. I'd suggest to use something widely available which everyone already has installed, like google's 'hangouts' or skype conference. As such the mark above is invalid but i cannot "unclick" it once clicked by mistake. (54)
- I'm afraid it just didn't work on my system (Linux Mint), although I did install the suggested software. (90)
- Not used, but encourage continued investment in this. (149)

Other Comments

- Job wait times outstandingly low compared to other cluster offerings i know. (25)
- best machine around. I have access also to Titan and Mira, and ARCHER is by far the best. (17)
- The staff i have interacted with via email has been top-notch. Very knowledgeable, with great communication. (60)
- Account setup is pretty simple, access to the right info to get jobs running is simple, and so overall - the service is good. Obviously, when the machine is loaded then jobs take longer - but not seen any issues - looking forward to using - following the upgrades. (84)
- The only major comment I would have about ARCHER service, deals with the average size of the jobs ran on ARCHER at the moment. A lot of them are multiple jobs using at

most 4 nodes of the machine, and I have the feeling that these jobs could be ran on local clusters. (58)

- ARCHER is a really good supercomputer even in comparison of other Tier 0 systems such some of PRACE supercomputers (I have recently performed benchmarks comparing ARCHER with other PRACE systems) so it would be good to continue to improve ARCHER to stay at the same level and add new functionalities. It would be interesting to test other types of architectures (using some prototypes) in term of number of cores, hybrid architectures, etc .. and let the ARCHER users to their preferred codes on such prototypes to design the next steps of ARCHER evolution for the future years (105)
- I am very happy with the service they have provided, and my research would have been severely slowed down if ARCHER had not been available. (108)
- Its great - long may it continue. (111)
- maintenance sessions are too frequent (125)
- So far, I am 100% satisfied with ARCHER (hardware, software and support). Please keep up the good work! (128)
- Faster response from SAFE, especially when redistributing time. Waiting for a response per budget change is very time consuming. Ability of being able to switch radio buttons with tick boxes (when connecting users to budgets). (129)
- Good service, no problems at all. Quick and useful responses from the helpdesk. Keep it like it is! (133)
- ARCHER is an excellent service, thank you all very much! (147)
- Given the attention industrial usage of HPC is getting, perhaps the UK would benefit from a RAP call for projects led by SME and smaller (start-ups) firms and involving an academic partner. I suggest this way around as an academic PI + SME can easily be put together and the SME involvement may only be a statement of support. I'd also suggest this call includes 2-4 weeks of eCSE support for the SME in hand-holding or bespoke training. The aim/objectives and eligibility requirements would need to be carefully defined to avoid recycling existing firms who use UK eInfrastructure. (149)