



ARCHER CSE Service Quarterly Report

Quarter 3 2016



1. Executive Summary

This report covers the period: 1 July 2016 to 30 September 2016 inclusive.

- Centralised CSE Team:
 - We have produced a paper proposing UK HPC Benchmarks based on usage on ARCHER to date. This aims to update ARCHER benchmarks to be more representative, by better reflecting current and future usage and also by maximising coverage of different service characteristics.
 - Started investigations into hybrid programming model use on ARCHER using the new data pulled into SAFE from ALPS log data. These models are likely to be of key importance in exploiting future processor technologies.
 - We have started production of user documentation for upcoming ARCHER KNL extension so that users can use the system as easily as possible as soon as it is available.
- Training:
 - We delivered 18.5 days (327 student-days) of face-to-face training in the quarter at 6 different locations, with an average feedback score better than “very good”.
 - PRACE funding was used to offer travel bursaries of £300 (awarded competitively based on short cases for support) to ten attendees of the ARCHER Summer School, broadening access to this training.
 - A clickable flowchart indicating possible training pathways is now integrated into the course description page which allows potential attendees to understand better how different courses link together and to plan their training.
 - The online training has been extended to include a complete recording of all the lectures from the most recent “Hands-on Introduction to HPC” course increasing the amount of material that can be accessed in a self-service way.
 - A virtual tutorial on the new KNL system was developed and delivered at short notice to promote user uptake; it was very successful and attracted more than 30 attendees.
 - The plan for the 2017 ARCHER training programme has been sent to the ARCHER Training Panel and to EPSRC; it will be discussed on 6 October.
 - 23 people successfully completed the ARCHER driving test in Q3, 21 of whom have subsequently applied for and received a user account.
 - Based on feedback from the ARCHER Champions meeting, we have developed an alternative version of the driving test for users of installed packages.
- ARCHER Outreach Project:
 - “Improving Accessibility to HPC training” best practice guide is now available on the Diversity in HPC web site: <http://www.hpc-diversity.ac.uk/best-practice-guide>. This provides steps that can be taken to make access, training and resources more accessible for people with disabilities.
 - We held an “Evening with Interesting People” event as part of our Women in HPC activities. This was on Sunday 25 September, alongside the EuroMPI conference. The event focused on careers in research software engineering and on making impact from your work.
 - The second ARCHER Champions meeting took place in Oxford on the 5th and 6th September 2016. Topics covered included SAFE development, the eCSE programme and outreach activities.
 - Two new demos have been developed for Wee Archie: one is a CFD application that allows children to modify the shape of an aircraft wing, the other is a weather forecasting demo. Our demos now cover a wide range of the science on ARCHER.
 - Wee Archlet has now been developed. This is a smaller version of Wee Archie that schools and community groups can build themselves. A draft of the build instructions has now been completed and an internal review process is underway.

- eCSE:
 - Of 67 projects from the first 8 eCSE calls, 65 have started and 44 have now completed. We are now regularly receiving Final Reports and should have a total of around 40 by the eCSE09 Panel meeting. The 2 projects from eCSE08 which have not yet started, are due to start by 1 January 2017.
 - The eCSE09 call opened on 2 August 2016 and closes at 4pm on 11 October 2016.
 - A Webinar was presented giving advise to potential applications on applying for eCSE funding, including specific advise on proposals involving work to develop codes for the new KNL system.

2. Collaborations and Outputs Summary

- Presentations:
 - Oliver Henrich, Computational Physics Outreach Talk, Sutton Trust, 1 July 2016, Edinburgh
 - Mark Filipiak, Open Source Toolkits: ParaFEM with PETSc, Hartree Summer School, 1 July 2016, Hartree Centre
 - Andy Turner, ARCHER Update, MCC User Meeting, 14 Jul 2016, London
 - David Henty, HPC Architectures and OpenMP, HPC Autumn Academy, 19-20 Aug 2016, Cambridge
 - Neelofer Banglawala, VoxFE: A Tale of Two eCSEs, ARCHER Champions Workshop, 5-6 Sep 2016, Oxford
 - Iain Bethune, Molecular Integration Simulation Toolkit - Interfacing Novel Integrators with Molecular Dynamics Codes, CCP5 Annual Conference, 12-16 Sep 2016, Harper Adams University
 - Andy Turner, Mapping the UK Application Landscape, 1st UKRSE Conference, 15-16 Sep 2016, Manchester
- Meetings:
 - Andy Turner, RAP/Leadership Panel Meeting, 13 Jul 2016, Swindon
 - Oliver Henrich, UKRSE Executive and Network Meeting, 15 July 2016, Bristol
 - Iain Bethune, CP2K Summer School, 22-25 Aug 2016, King's College London
 - David Scott, UKTC Annual Workshop, 1-2 Sep 2016, Cambridge
 - Oliver Henrich, International Soft Matter Conference, 12-16 Sep 2016, Grenoble, France
 - Andy Turner, HPC-SIG Meeting, 13 Sep 2016, Warwick
 - Andy Turner, EPSRC HEC Chairs Meeting, 14 Sep 2016, Swindon
 - Andy Turner, 1st UKRSE Conference, 15-16 Sep 2016, Manchester
- Papers:
 - Iain Bethune, Implementing dual-resolution simulation methodology in LAMMPS, ARCHER White Paper, 15 August 2016
- Posters:
 - Oliver Henrich, Microfluidic flow of cholesteric liquid crystals, International Soft Matter Conference, 12-16 Sep 2016, Grenoble, France
 - Iain Bethune, Implementing dual-resolution simulation methodology in LAMMPS, CCP5 Annual Conference, 12-16 Sep 2016, Harper Adams University

3. Forward Look

- KNL System:
 - Provide expertise to ensure the KNL development system is functional from a user viewpoint so that users can start using it as soon as it is available.
 - Produce user documentation and tips for getting the most out of the KNL development system.
 - Run the benchmarks obtained through the Application Landscape on the KNL system to compare performance with the standard ARCHER compute nodes.
- Application Landscape:
 - Gather specific benchmark cases for UK HPC application benchmarks from the ARCHER user community and generate performance data for ARCHER in production as first step in baselining performance for future procurements.
- Parallel I/O:
 - Produce white paper and user documentation on performance of parallel I/O on ARCHER to help users use the system more efficiently.
 - Implement *file-per-process* model of parallel I/O in *benchio* and benchmark on the target systems.
- Software Packaging:
 - The Spack and EasyBuild systems for packaging scientific software have been tested on ARCHER. We will produce a short comparison document and move ahead with the chosen solution. This will allow us to improve the self-service support to users in terms of applications on ARCHER.
 - Cray have provided a solution for packaging up specific development environment settings. We will produce documentation on this functionality so ARCHER users can use it to have reproducible environments on the system. This will make testing applications and reproducing simulation results much simpler.
- Training:
 - We are developing a new, 1-day hands-on introduction to the KNL system, to be run in early November to help users get the most out of the system.
 - A new KNL-specific version of the driving test is being created to ensure users can gain the required knowledge to use the KNL extension effectively.
 - In-depth KNL courses are already planned for next year.
 - We plan to issue the fourth training impact survey to course attendees by the end of the year; the exact date will be chosen to align with the annual ARCHER user surveys.
- ARCHER Outreach Project:
 - We will focus on the online training material to increase accessibility to those with disabilities – in particular the introductory courses.
 - We plan to continue to increase the number of interviews on the faces of HPC web site to ensure the site represents a broad and diverse group of people.
 - The next ARCHER Champions meeting will take place at the University of Leeds on Friday 10 February. This has been arranged to follow the HPC-SIG meeting to raise the profile of Champions with HPC-SIG and encourage integration.
 - We are commencing planning for the Big Bang Fair in March to ensure the material is fresh and of a high quality.
 - Testing of Wee Archlet beyond EPCC will commence. The aim is to obtain feedback from a small number of school and community groups before releasing the material to a wider audience.
 - Work on developing the Outreach Ambassadors pack, to ensure material developed for demonstrations is available and used by people outwith the CSE ARCHER team, such as ARCHER Ambassadors and Champions.
- eCSE:
 - Following on from our very successful first call, a second call for Early Career Researchers to attend Panel meetings as observers is planned to open in November 2016. Researchers accepted at this call will be invited to attend the final three eCSE Panel meetings to gain valuable insight into how the panel functions to help them develop their research career.

4. Contractual Performance Report

This is the contractual performance report for the ARCHER CSE Service for the Reporting Periods: July 2016, August 2016 and September 2016.

The metrics were specified by EPSRC in Schedule 2.2 of the CSE Service Contract.

CSE Query Metrics

- **QE1:** The percentage of all queries notified to the Contractor by the Help Desk in a Quarter that the Contractor responds to, and agrees a work plan with, the relevant End User within 3 working hours of receiving the notification from the Help Desk. *Service Threshold: 97%; Operating Service Level: 98%.*
- **QE2:** The percentage of all queries notified by the Help Desk to the Contractor that have been satisfactorily resolved or otherwise completed by the Contractor within a 4-month period from the date it was first notified to the Contractor. *Service Threshold: 80%; Operating Service Level: 90%.*
- **TA1:** The percentage of all technical assessments of software proposals provided to the Contractor by the Help Desk in any Service Period that are successfully completed by the Contractor within 10 days of the technical assessment being provided to the Contractor by the Help Desk. *Service Threshold: 85%; Operating Service Level: 90%.*
- **FB1:** The percentage of End User satisfaction surveys for CSE queries carried out in accordance with the Performance Monitoring System by the Contractor showing the level of End User satisfaction to be “satisfactory”, “good” or “excellent”. *Service Threshold: 30%; Operating Service Level: 50%.*

Period	Jul-16		Aug-16		Sep-16		Q3 2016	
	Perf.	SP	Perf.	SP	Perf.	SP	Perf.	Total
QE1	100%	-2	100%	-2	100%	-2	100%	-6
QE2	100%	-2	100%	-2	100%	-2	100%	-6
TA1	100%	-1	100%	-1	100%	-1	100%	-3
FB1	100%	-2	100%	-2	100%	-2	100%	-6
Total		-7		-7		-7		-21

*Pink – Below Service Threshold
Yellow – Below Operating Service Level
Green – At or above Operating Service Level*

Training Metrics

- FB2:** The percentage of all training satisfaction surveys carried out in accordance with the Performance Monitoring System by the Contractor) in each Quarter that are rated “good”, “very good” or “excellent”. *Service Threshold: 70%; Operating Service Level: 80%.*

Period	Jul-16		Aug-16		Sep-16		Q3 2016	
	Perf.	SP	Perf.	SP	Perf.	SP	Perf.	Total
FB2	100%	-1	100%	-1	100%	-1	97%	-3
Total		-1		-1		-1		-3

Pink – Below Service Threshold
Yellow – Below Operating Service Level
Green – At or above Operating Service Level

Service Credits

Period	Jul-16	Aug-16	Sep-16
Total Service Points	-8	-8	-8

5. CSE Queries

Queries Resolved in Reporting Period

Metric Descriptions

In-Depth	All technical queries passed to ARCHER CSE team
Course Registration	Requests for registration on ARCHER training courses or enquiries about registration
Technical Assessment: <Category>	Request for Technical Assessments of applications for ARCHER time
eCSE Application	Queries relating to eCSE applications

A total of 203 queries were resolved by the CSE service in the reporting period.

Metric	Jul-16	Aug-16	Sep-16	Total	% Total
Course Registration	46	38	74	158	78%
In-Depth	7	4	17	27	13%
eCSE Application	2	1	1	4	2%
Technical Assessment: Grant	3	2	5	10	5%
Technical Assessment: Instant	3	1	0	4	2%

4 query feedback responses were received on In-depth queries in the reporting period. This represents a 15% return rate for feedback forms. Resolved In-Depth queries fell into the following categories:

Category	Number of Queries	% Queries
3rd Party Software	16	59%
User Programs	4	15%
Performance and Scaling	3	11%
Compilers and system software	2	7%
Other	2	7%

In-Depth Query Highlights

A small number of In-Depth queries have been selected to illustrate the work of the centralised CSE team over the report period.

Q784145: Advice on parallelisation

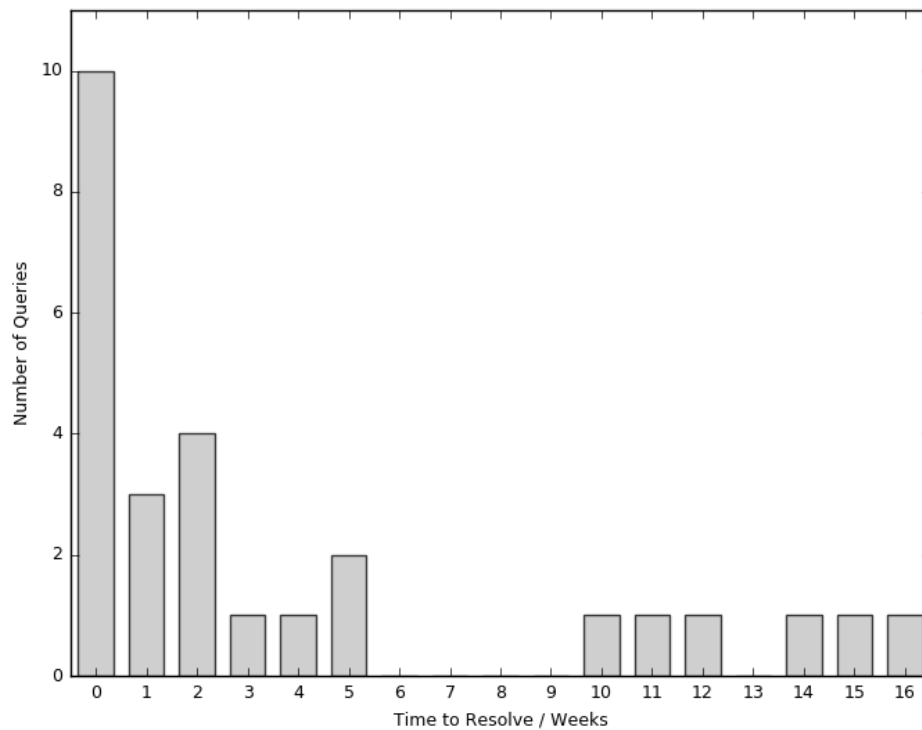
A user who had previously (unsuccessfully) applied for eCSE funding and who wished to parallelise their application using MPI contacted the CSE team to request advice. We took the application, examined its performance on ARCHER, and suggested a number of different ways in which it could be parallelised using distributed memory parallelism. The user is planning to reapply for eCSE funding based on the advice received. If successful, this would bring a new group onto ARCHER who have previously been unable to exploit Tier-1 HPC facilities to advance their research.

Q788145: Signalling an application

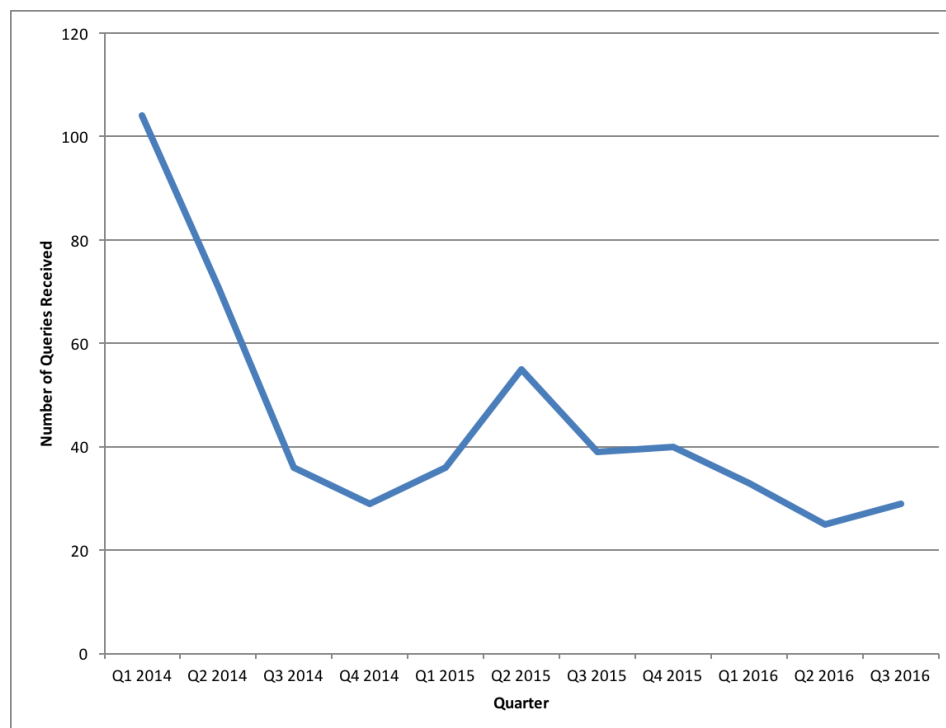
A user has an application that can catch a signal sent from the shell, output final data and tidy up before finishing. They wanted a way of signalling an application with a small amount of time left in the job so the application can shut down properly. The CSE team has provided the *leave_time* script for this purpose and modified it so that the user can select which signal to send to their application. We also identified that the XALT monitoring tool was interfering with signals sent to applications. The user was provided with a workaround so that they could successfully use *leave_time* with their application while this issue is investigated further with the XALT developers to find a permanent fix. The user is now successfully using this functionality of their application on ARCHER.

In-Depth Query Analysis

The histogram below shows the time to resolution for In-Depth queries in the current reporting period. The median resolution time during this period is 2 weeks (median resolution time since 1 Jan 2014 is 2 weeks).

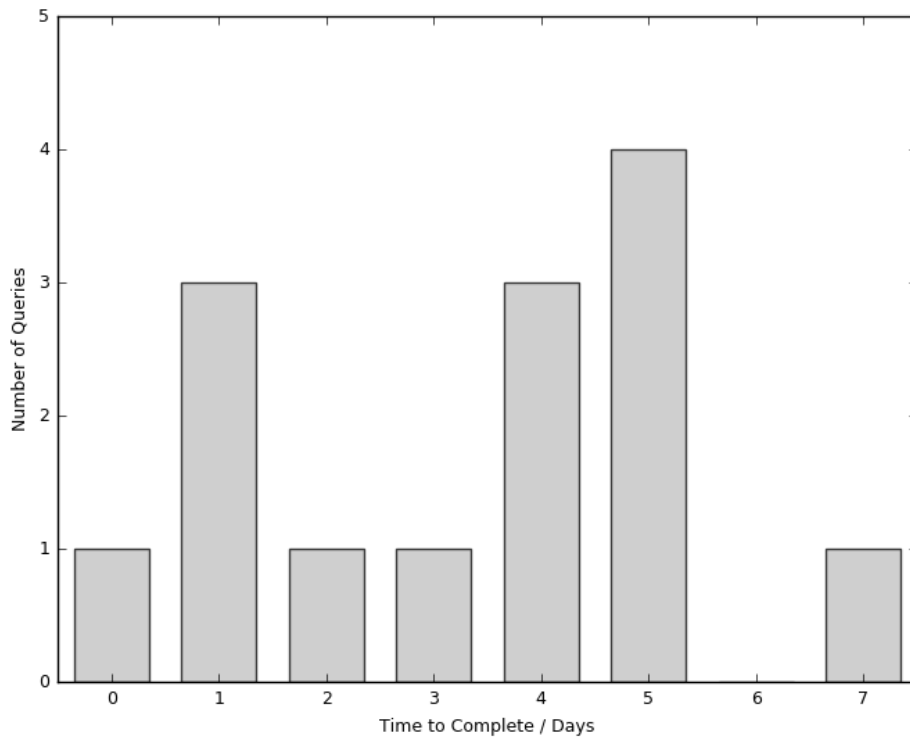


Plot of numbers of In Depth queries received per quarter:

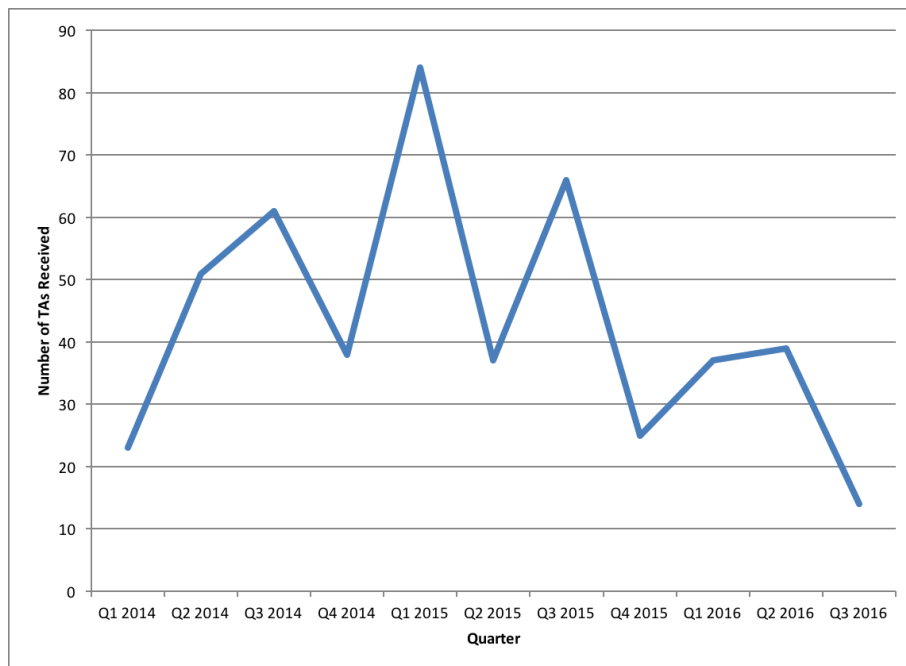


Technical Assessment Analysis

A histogram of the time to completion for Technical Assessments (see below) reveals that the median completion time for this quarter was 4 days (median completion time since 1 Jan 2014 is 3 days).



Plot of numbers of Technical Assessments received per quarter:



6. Centralised CSE Team: Strategic Priorities Progress

In collaboration with user groups and the other Service partners, the CSE service has identified a number of priority areas to invest technical effort from the centralised CSE team. Together we identified three key areas and a number of additional areas.

This identification and prioritisation process has a number of aims:

1. Ensure technical work undertaken by the centralised CSE team is of maximum benefit to the ARCHER user community.
2. Ensure that the CSE service partners effectively with other groups (e.g. Cray CoE, DiRAC benchmarking team) in any joint technical work to bring benefit to the ARCHER user community.
3. Ensure that UK national HPC community has the best technical data on which to base procurement decisions.

In this section we provide updates on progress in the different areas during the reporting period.

Parallel I/O Performance

In this quarter we have focussed on gathering performance data for single-file parallel writes on a variety of architectures. We now have data for the following systems when using MPI-IO:

- ARCHER, Lustre
- COSMA, GPFS
- RDF (via Data Analytic Cluster), GPFS
- JASMIN (via Lotus cluster), GPFS

For ARCHER and COSMA, the parallel file systems are used for large scale HPC jobs and for the RDF and JASMIN, they are designed to support data processing work. We have also contacted the UK Met Office to ask if the same benchmarks could be run on their HPC parallel file systems.

Work in the next quarter will concentrate on:

- Adding information on shared file parallel I/O to the ARCHER Best Practice Guide to assist ARCHER users.
- Completing the data collection for shared file write performance when using NetCDF and HDF5.
- Evaluating the performance of a file-per-process model on the target systems, this maps more closely onto data processing work.
- Making the *benchio* application that we have developed more widely available via GitHub so other sites can use it for I/O benchmarking.

In the future we will also incorporate evaluating read performance into the *benchio* tool.

Understanding the ARCHER Application Landscape

Using the data collected on ARCHER we have proposed an updated set of benchmarks that:

- provide a good representation of the usage of the system now and in the future;
- provide as much coverage of different system features as possible.

This paper was been circulated to leaders of the main ARCHER EPSRC scientific consortia and their comments and feedback have been incorporated. In the next quarter we will repeat this process with the NERC scientific consortia and then initiate the process of obtaining concrete benchmarking cases from the ARCHER user community.

Cray Resource Usage Reporting (RUR) has now been successfully enabled on ARCHER and the SAFE has been updated to include data from RUR into job records. This will allow us to automatically collect information on memory and power usage on all applications running on ARCHER. This new functionality will be fully-tested and rolled out into the production version of the ARCHER SAFE in the next quarter.

The outputs from this activity provide key inputs to the *Assessing New HPC Technologies* and *Continuous Integration Server* activities.

Assessing New HPC Technologies

This activity is currently waiting for the benchmark cases from the Application Landscape activity to make further progress. In the next quarter we aim to run applications from the updated benchmark suite on the ARCHER KNL system and report the results to the ARCHER community. If the benchmarks are not yet available, then we will select alternatives that match as closely as possible the missing benchmark cases.

Other Areas

The **Sensitivity Analysis** activity was suggested by the ARCHER user community to investigate tools for conducting sensitivity analysis on applications running on ARCHER. We have investigated the Dakota tool (<http://dakota.sandia.gov/>), have installed it on ARCHER, and are in the process of producing a white paper describing how to use it successfully. This will allow users to improve the robustness of their scientific results by assessing how sensitive they are to variations in input parameters and also provides a useful framework for performing automated parameter sweeps.

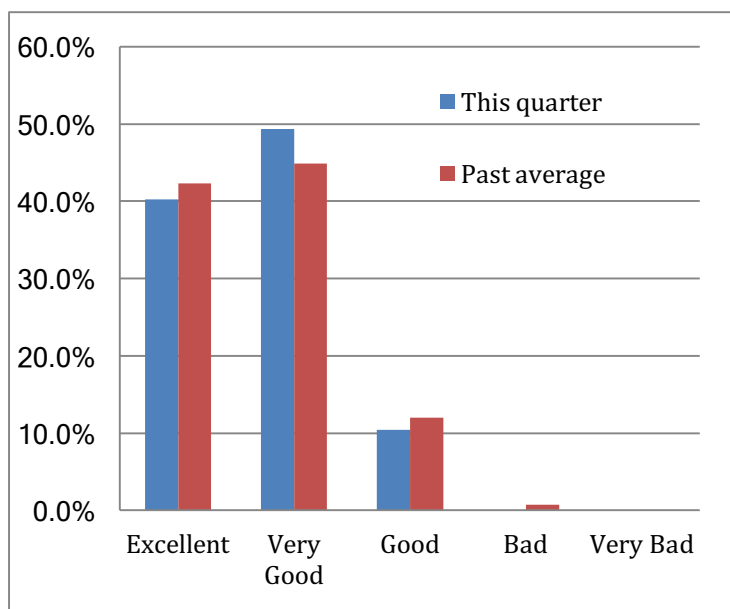
The **Continuous Integration (CI) Server activity** now runs a variety of tests of user-facing functionality that are not captured in standard system monitoring, including: correct functioning of compilers and job submission to different queues. The performance of parallel I/O is also now routinely monitored using *benchio* through the CI server and the results from this analysis are being fed into the parallel I/O activity to give a different, statistical view of performance. Once we have the initial benchmarks from the Application Landscape they will also be added to get a statistical view of performance variation.

7. Training

In the reporting period, the CSE Service has provided a total of 18.5 days (327 student-days) of face-to-face training across six different locations and 2 days of interactive online tutorials (average attendance 13 per tutorial).

Month	Dates	Course	Location	Days
Jul 2016	6-8	Performance Analysis Workshop	Cambridge	3
	7	TAU HPC Tool	Online	0.5
	11-12	Hands-on Introduction to HPC	Edinburgh	2
	13-15	Message-Passing Programming with MPI	Edinburgh	3
	13	eCSE03-8: Supermeshing library	Online	0.5
Aug 2016	2-4	Advanced OpenMP	Bristol	3
Sep 2016	6-7	Scientific Python	Oxford	1.5
	8-9	Shared-Memory Programming with OpenMP	London	2
	14	The Intel Knights Landing Processor	Online	0.5
	21	Applying for an eCSE KNL project	Online	0.5
	28-29	Practical Software Development	RAL	2
	29-30	Advanced MPI	Edinburgh	2

On the feedback for face-to-face courses, attendees rate the course on a scale of 1-5 (“Very bad”, “Bad”, “Good”, “Very good” and “Excellent”). The average feedback using this metric was 4.3, i.e. better than “Very Good”. Users provided 77 feedback forms, a response rate of 56%.



14 days of face-to-face training are planned for the next quarter, plus 2 days of online training. We will meet our annual target of 72 days.

Month	Dates	Course	Location	Days	Attendees
Oct 2016	11-12	GPU Programming with CUDA	London	1.5	
	12	Using KNL on ARCHER	Online	0.5	
	19	Biological systems in LAMMPS	Online	0.5	
Nov 2016	1	Using KNL on ARCHER	Edinburgh	1	
	2-3	Data Carpentry	Edinburgh	2	
	8	Intro to ARCHER for NCAS users	Reading	0.5	
	28-29	Single-Node Performance Optimisation	Manchester	2	
	9	Cray Performance Tools	Online	0.5	
	30 Nov - 2 Dec	Message-Passing Programming with MPI	London	3	
Dec 2016	TBC	Hands-On Introduction to HPC	Durham	2	
	7	eCSE CP2K tutorial	Online	0.5	
	12-13	Writing Scalable Parallel Applications using MPI	Manchester	2	

8. Outreach Project

Diversity

Current activities:

- “Improving Accessibility to HPC training” best practice guide is now available on the Diversity in HPC web site: <http://www.hpc-diversity.ac.uk/best-practice-guide>
- Women in HPC is running a one-day workshop at SC16 (Salt Lake City, UT, November 2016) titled “Women in HPC: Diversifying the HPC Community”.
- We held an “Evening with Interesting People” event as part of our Women in HPC activities. This was on Sunday 25 September, alongside the EuroMPI conference. Around 50 people attended the event. <http://www.eurompi2016.ed.ac.uk/sunday>
- We are involved in two Birds of a Feather sessions and one panel session at SC16 through our Women in HPC work: “How to Build Diverse Teams for More Effective Research”, “Women in HPC: Intersectionality”, “HPC Workforce Development: How Do We Find Them, Recruit Them, and Teach Them to Be Today's Practitioners and Tomorrow's Leaders?”

Future activities:

- We will focus on the online training material to increase accessibility to people with disabilities – in particular the popular introductory courses that are a basis for future courses.
- We plan to continue to increase the number of interviews on the faces of HPC web site to ensure the site represents a broad and diverse group of people.

User Engagement and Skills Development

Current activities:

- The ARCHER Champions meeting took place in Oxford on the 5 and 6 September 2016. See: http://www.archer.ac.uk/community/champions/workshops/oxf_sept2016/ Topics covered included SAFE development, the eCSE programme and outreach activities.

Future activities:

- We are currently planning the next Hands-on Porting and Optimisation Workshop for Q2 next year.
- The next ARCHER Champions meeting will take place at the University of Leeds on Friday 10 February. This has been arranged to follow the HPC-SIG meeting to raise the profile of Champions with HPC-SIG and so encourage integration.

Outreach Programme

Current activities:

- Two new demos have been developed for Wee Archie: one is a CFD application that allows children to modify the shape of an aircraft wing; the other is a weather forecasting demo. Both were tested/demonstrated at Bang Goes the Borders, St. Mary's School, Melrose, 19 Sept 2015.
- Teacher's pack – we are working with a school in Stirling to develop this.
- Wee Archlet has now been developed. This is a smaller version of Wee Archie that schools and community groups can build themselves. A draft of the build instructions has now been completed and an internal review process is underway. Once this is complete 2-3 groups have agreed to act as testers.
- Wee Archie has become so popular that we are constructing a second mini supercomputer. This will allow development work to continue while Wee Archie is at events.
- We have committed to taking part in the Big Bang Fair again in March 2017.

- We had a stand at the IET Engineering the Future Festival on the 6 October at IET London: <http://www.engfest.org>. Wee Archie was the main attraction with the aircraft wing demo. The audience was mainly 11-14 year olds with around 360 attendees.
- We have submitted an application for the Royal Society Summer Science Exhibition.

Future activities:

- We are commencing planning for the Big Bang Fair in March to ensure the material is fresh and high quality.
- Testing of Wee Archlet beyond EPCC will commence. The aim is to obtain feedback from a small number of school and community groups before releasing the material to a wider audience.
- Work will also focus on developing the Outreach Ambassadors pack, to ensure material developed for demonstrations is available and used by people outwith the CSE ARCHER team, such as ARCHER Ambassadors and Champions.

Impact Material

Current activities:

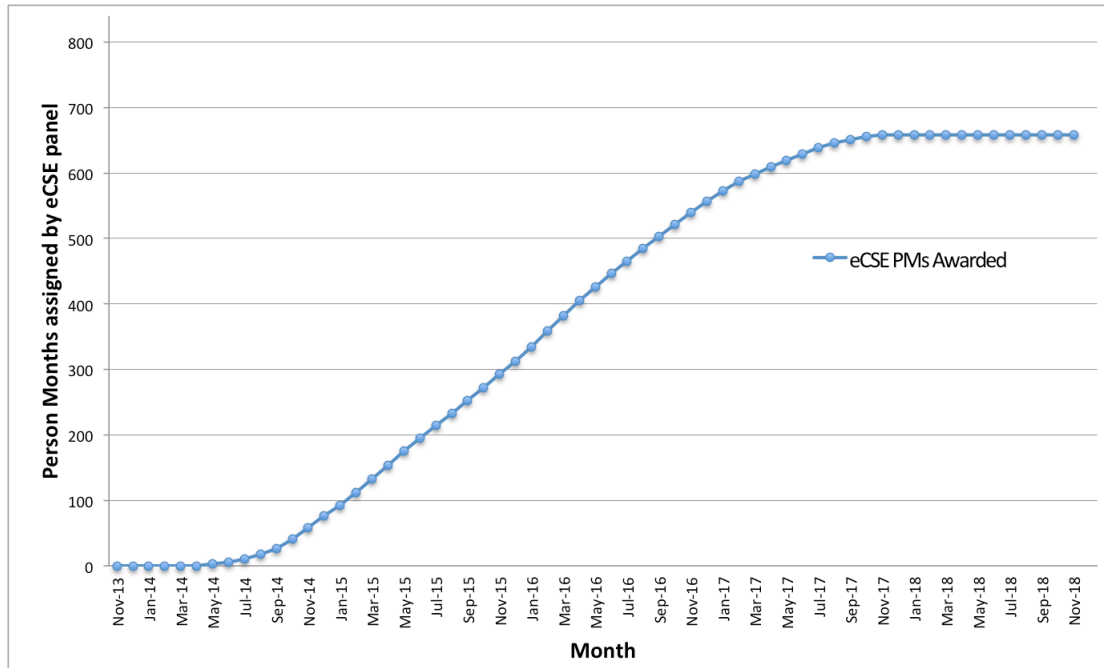
- New case study: A Personalised Approach to Computational Heart Modelling http://www.archer.ac.uk/casestudies/ARCHER_casestudy_heart_modelling.pdf
- Series of postcards produced for each of the case studies on the web site.
- 21 eCSE highlights from completed eCSE projects are now on the web site: <http://www.archer.ac.uk/community/eCSE/>
- ARCHER Image competition is currently open, closing date is the 21 October 2016.

Future activities:

- We will continue to develop new case studies to ensure the case study series is fresh and representative of the science and impact on ARCHER.
- Judging of the Image competition will also take place to provide a new set of high quality images before the end of the year.

9. Embedded CSE (eCSE)

Overview of eCSE Effort



- The eCSE person months awarded up to and including the 8th eCSE call are shown in blue.
- At least 840 person months will be awarded by the end of the project (14 FTEs for 5 years).
- 670 person months have been awarded so far over 67 eCSE projects.

eCSE Call 1 – Call 8

eCSE call	No. proposals	No. projects awarded	No. projects started	No. projects completed	No. final reports received	Notes
eCSE01	19	14	14	14	13	1 late final report is being pursued and the PI has been given a final deadline for providing the report
eCSE02	17	9	9	9	8	
eCSE03	16	10	10	8	6	1 late final report is being pursued. The final report for the remaining completed project is not due yet.
eCSE04	16	8	8	6	2	1 late final report is being pursued. The final reports for the other 3 completed projects are not due yet.
eCSE05	14	8	8	6	0	The final report for the completed projects are not due yet.
eCSE06	9	5	5	1	0	The final report for the completed project is not due yet.
eCSE07	16	5	5	0	0	
eCSE08	21	8	6	0	0	
Total	128	67	65	44	29	

- A risk analysis identified all projects as being of either low or very low risk apart from the following:
 - eCSE04-4 which was identified as being of medium risk as the person named to do the technical work was offered a position elsewhere.
 - The member of staff originally named on the contract completed 1.5 of the 12 months of work before leaving to take up another post. With approval from the PI and eCSE Panel chair, a member of staff from the ARCHER CSE team was identified to fill this gap and took on the work from 01/10/15. This project is now being monitored within the CSE team.
 - eCSE04-10 which was identified as being of medium risk as the PI indicated that the person named to do the technical work may not be available.
 - This project will go ahead with the original staffing. There was a short delay to the start of the project which started on 01/01/16 and the project appears to be progressing well.
 - eCSE04-16 which was identified as being of medium risk as the PI indicated that the person named to do the technical work may not be available.
 - This project started on 01/9/15 with a change of staffing. This project was originally to be staffed by Imperial College but was instead staffed

- by STFC. The project has now been completed and we are awaiting the final report.
 - eCSE07-15 which was identified as being of medium risk as the named member of technical staff was not able to commit the proposed amount of time to the project.
 - The PI's team identified a second member of staff who will also work on the project. This project has now started and can be removed from the risk list.
- Iakovos Panourgias, EPCC gave an ARCHER webinar on 13 July 2016 on the work of his eCSE project eCSE03-8 entitled "Construction of a general purpose parallel supermeshing library for multimesh modelling".

eCSE Call 9

- The eCSE09 call opened on 2 August 2016 and will close on 11 October 2016
- The deadline was extended from an earlier deadline of 13 September 2016. This was to allow proposals to develop codes for the new KNL system to be included and also to coordinate with the EPSRC Software Flagship call.

Future eCSE Calls

- eCSE calls are run to a regular schedule. The future calls are:
 - eCSE10: opens 6 December, 2016 and closes at 4pm on Tuesday 31 January, 2017
 - eCSE11: opens 28 March, 2017 and closes at 4pm on Tuesday 9 May, 2017
 - eCSE12: opens 1 August, 2017 and closes at 4pm on Tuesday 12 September, 2017