ARCHER2
SP Quarterly Report

April – June 2021
EPCC
The University of Edinburgh

Document Information and Version History

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0.1	23/04/2021	Template Created	Jo Beech-Brandt
0.2	28/06/2021	ISO, benefits information added	Anne Whiting
0.3	02/07/2021	Added contract metrics and graphs	Jo Beech-Brandt
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1 The ARCHER2 Service

1.1 Service Highlights

This is the report for the ARCHER2 SP Service for the Reporting Period:
1 April – 30 June 2021.

- The ARCHER2 4-Cabinet Service continues to operate and provides a good service to the community. The utilisation for the last quarter was 83% which was slightly down from the previous quarter of 85%. As agreed with UKRI, charging was switched on on 1 April so a slight dip in utilisation would be expected although it should be noted that the utilisation has remained high.

- The ACF component of the ARCHER2 /home filesystem was moved as part of the essential power work which took place on 29 June. This means that the /home filesystems are now in their final places and will alleviate the work required when the full system is activated. The software and firmware of the filesystems were also updated.

- The RDFaaS is now available from the ARCHER2 User Access Nodes (UANs). Users are able to fully access their data which had been migrated from the RDF. We have also enabled access to the data for ARCHER users whose projects had ended and did not migrate to ARCHER2. The new 200 Gbit/s Data Centre Network which will provide 100 Gbit/s access to JANET has been deployed at the ACF.

- An initial set of Benefits Realisation metrics have been agreed with UKRI, which will be used in the business case for future National Services to help demonstrate the positive impact of the ARCHER2 service in delivering crucial science output. The majority of these metrics will be collected in the SAFE and will involve more input from the user community than previously. User communication has commenced to stress the importance of the information for the provision of future services.

- Users submitting queries to the service desk with a SAFE account have been asked for feedback on the handling of their query. From the SP user logged queries received, 124 feedback responses have been received during the quarter, 100% were Good, Very Good or Excellent with 78% given the highest score of Excellent. A donation of £1 per user feedback response has been made to our selected charity, Save the Children. This quarter a total donation of £253 has been made, with £124 from the SP Query feedback.

- Data generated showing queue duration and utilisation is analysed on a weekly basis. Based on the findings, changes to the queue layout are proposed and implemented where necessary to help alleviate queuing and ensure fairshare across the user communities. This quarter. a new low priority queue was enabled and the number of nodes available within the short queue was increased.

1.2 Forward Look

- 16 Cabinets are currently being deployed in Edinburgh with 7 cabinets to be integrated in the coming weeks.

- The full ARCHER2 system is planned to be deployed to users during the next few months. Reallocation of space within the /work directories will take place, but users will continue to use their existing ARCHER2 accounts to access the full system.

- EPCC development time on the ARCHER2 main system has started and the team is starting to prepare the main system for user deployment.

- ISO 9001/27001 - Work is underway to prepare for our ISO 27001 information security re-certification audit which is due in September 2021. We have an annual ISO 9001 quality annual surveillance audit at the same time. Throughout the year we run a program of internal audits and improvement projects to ensure that the quality of the services we deliver meet and exceed requirements and that we ensure all customer and user data is handled securely and meetings the risk appetite of its owners.

2 ARCHER2 Performance Report

This is the contractual performance report for the ARCHER2 SP Service for the Reporting Periods from 1 April 2021 until 30 June 2021.

2.1 Service Points and Service Credits

The Service Levels and Service Points for the SP service are defined by EPSRC in Schedule 2.2 of ARCHER2 SP Service Contract.

The Working Day (WD) for the ARCHER2 Service is 10 Working Hours (WH) as the Service operates from 0800-1800. The Median Time to Resolution is measured in WD.

- **Availability**: *Service Threshold: <=96.5%; Operating Service Level: >98.0%, ≤ 98.5%.*
- **ARCHER2_SP_Level1 (MTR)**: The Median Time to Resolution, of all SP queries falling within Level 1 resolved by the Contractor in the Reporting Period. *MTR Service Threshold: >1 WD; Operating Service Level: >0.3 WD, ≤ 0.45 WD.*
- **ARCHER2_SP_Level2 (MTR)**: The Median Time to Resolution, of all SP queries falling within Level 2 resolved by the Contractor in the Reporting Period. *MTR Service Threshold: >8 WD; Operating Service Level: >2 WD, ≤4 WD.*
- **ARCHER2_SP_Level3 (MTR)**: The Median Time to Resolution, of all SP queries falling within Level 3 resolved by the Contractor in the Reporting Period. *MTR Service Threshold: >25 WD; Operating Service Level: >12 WD, ≤16 WD.*
- **Initial Response to Queries (%):** The percentage of the total number of SP queries assigned to the Contractor in the Reporting Period responded to within 3 Working Hours. *Service Threshold: <96.00%; Operating Service Level: 98.00 – 98.99%.*
- **Query User Satisfaction (%):** The percentage of the total number of query satisfaction surveys completed in each Reporting Period, rating the quality of the resolution of Queries by the Contractor as "Good", "Very Good" or "Excellent". *Operating Service Level: 82.00 – 87.99%*

2.1.1 Service Points

Metric	Apr 2021		May 2021		Jun 2021		Q2 2021	
	Perf	Points	Perf	Points	Perf	Points	Perf	Points
Availability	-	-	-	-	-	-	**-**	**-**
SP_Level1 (MTR)	0.00	-2	0.00	-2	0.00	-2	**0.00**	**-6**
SP_Level2 (MTR)	0.07	-2	0.10	-2	0.06	-2	**0.07**	**-6**
SP_Level3 (MTR)	4.81	-2	0.07	-2	4.52	-2	**4.18**	**-6**
Initial Response (%)	100%	-1	100%	-1	100%	-1	**100%**	**-3**
Query Satisfaction (%)	100%	-2	100%	-2	100%	-2	**100%**	**-6**
Total		**-9**		**-9**		**-9**		**-27**

2.1.2 Service Credits

As the Total Service Points are negative (-27), no Service Credits apply in 21Q2.

2.2 SP Query Statistics

The metrics were specified by EPSRC in Schedule 2.2 of ARCHER2 SP Service Contract.
- **No. of Assigned:** The number of SP queries assigned to the Contractor within each query resolution category in the Reporting Period.
- **No. of Resolved:** The number of SP queries resolved by the Contractor within each query resolution category in the Reporting Period.
- **Backlog:** The number of SP queries assigned to the Contractor that remained unsolved within each query resolution category in the Reporting Period
- **Avg No. of Correspondence:** The average number of pieces of correspondence generated for SP queries in each query resolution category.
- **Avg Time of First Responses:** The average time taken for the Contractor to first respond to the Originator of the SP query.

April 2021					
Service level	**Assigned**	**Resolved**	**Backlog**	**Correspondence**	**First Response**
SP_Level1	1884	1884	0	0.151	0:01:02
SP_Level2	147	140	47	8.321	0:18:42
SP_Level3	5	4	3	13.25	0:11:00
May 2021					
Service level	**Assigned**	**Resolved**	**Backlog**	**Correspondence**	**First Response**
SP_Level1	1023	1023	0	0.168	0:00:24
SP_Level2	92	111	28	7.693	0:21:03
SP_Level3	2	1	4	10	0:00:00
June 2021					
Service level	**Assigned**	**Resolved**	**Backlog**	**Correspondence**	**First Response**
SP_Level1	1849	1842	7	0.169	0:01:05
SP_Level2	98	107	19	7.832	0:19:06
SP_Level3	4	5	3	22.8	0:09:58
Q2 2021					
Service level	**Assigned**	**Resolved**	**Backlog**	**Correspondence**	**First Response**
SP_Level1	4756	4749	7	0.162	0:00:55
SP_Level2	337	358	19	7.98	0:19:33
SP_Level3	11	10	3	17.7	0:09:23

2.3 Query Resolution

Metric	Apr 2021		May 2021		Jun 2021		Q2 2021	
Service Level	MTR	Number Resolved	MTR	Number Resolved	MTR	Number Resolved	MTR	Number Resolved
SP_Level1	0:00:09	1884	0:00:11	1023	0:00:16	1842	0:00:13	4749
SP_Level2	0:41:14	140	1:00:36	111	0:38:38	107	0:44:47	358
SP_Level3	48:05:52	4	0:40:40	1	45:07:18	5	41:47:20	10
Total		**2028**		**1135**		**1954**		**5117**

There were 0 queries that failed the maximum completion time during this period.

A total of 5,117 queries were resolved by the ARCHER2 SP Service in the Reporting Period. The percentage of user queries responded to within 3 hours was 100%.

2.4 Query Feedback

During April, there were 48 feedback scores received during this period. 100% were Good, Very Good or Excellent with 77% given the highest score of Excellent.

During May, there were 46 feedback scores received during this period. 100% were Good, Very Good or Excellent with 76% given the highest score of Excellent.

During June, there were 30 feedback scores received during this period. 100% were Good, Very Good or Excellent with 83% given the highest score of Excellent.

2.4 Maintenance and Outages

Tuesday 28th April: Compute Nodes unavailable 0900-1100
Users were able to access data and the User Access Nodes (UANs) throughout the maintenance session.
A new version of the HPE Cray Programming Environment was installed to address memory leaks that were affecting a significant number of users and to help users prepare for the main ARCHER2 system. Installing this PE required a reboot of the compute nodes.
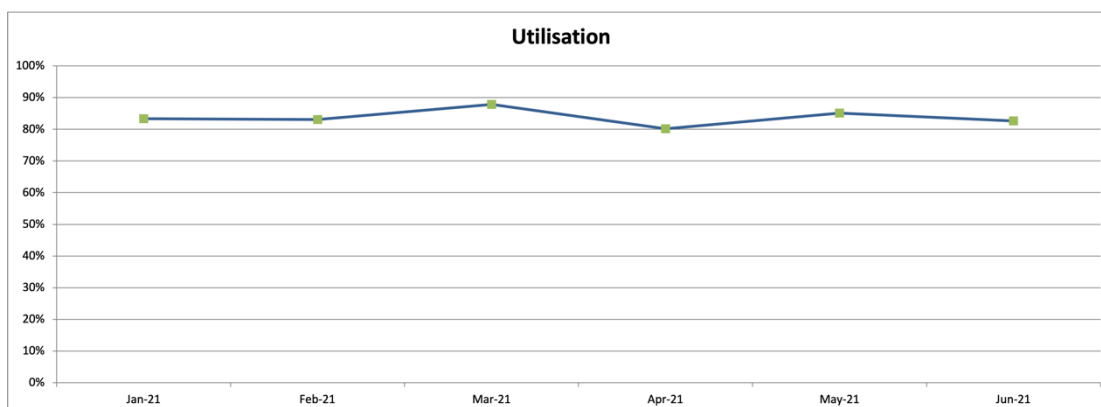
Tuesday 29th June: Full Maintenance 0600-2300
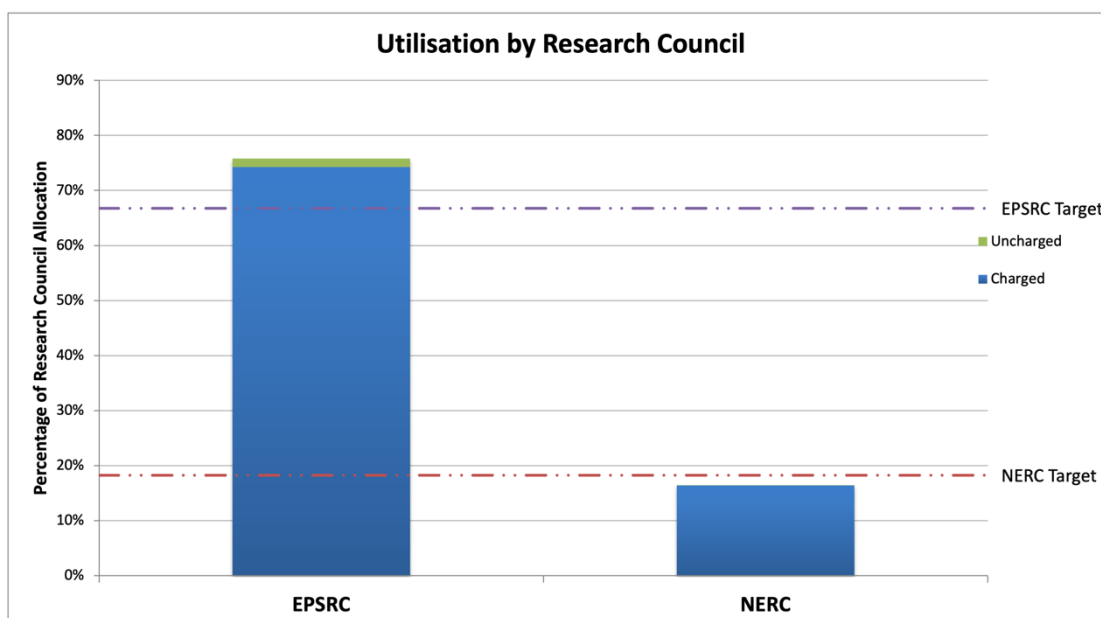There was a full ARCHER2 maintenance session for essential power work at the ACF.

3 ARCHER2 Service Statistics

3.1 Utilisation

Utilisation from 1 April – 30 June was 83%, which is only slightly down from 85% the previous quarter during the uncharged period. Utilisation for April was 80%, for May 85% and for June 83%. It should be noted that charging started from 1st April 2021 on ARCHER2.
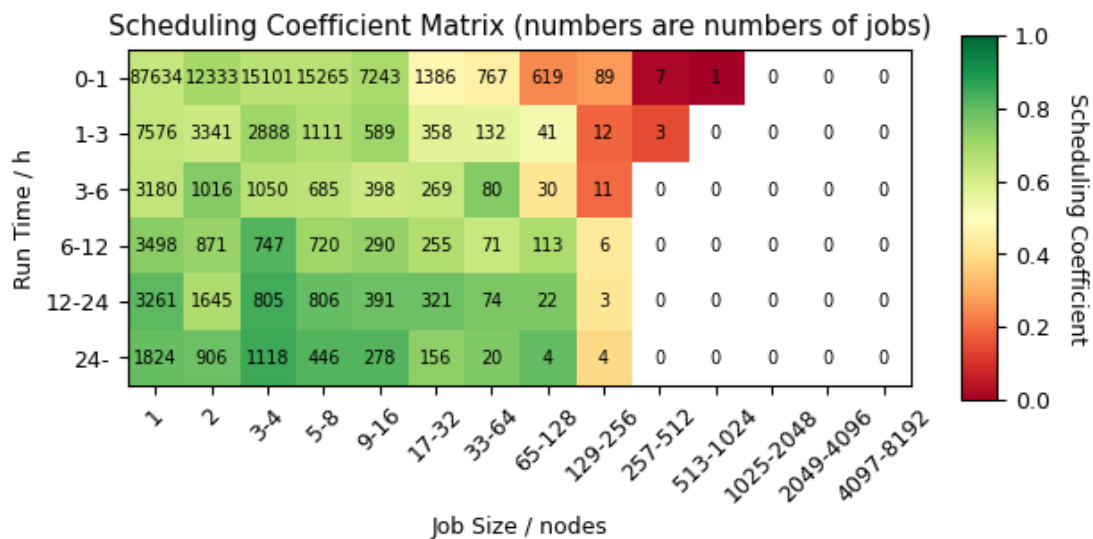

The utilisation by the Research Councils, relative to their respective allocations, is presented below. This bar chart shows the usage of ARCHER2 by the two Research Councils presented as a percentage of the total Research Council allocation on ARCHER2. It can be seen that EPRSC exceeded their target this quarter with their usage being at 75.8% (against their target of 66.76%) but NERC just missed their target with utilisation being 16.4% (against their target of 18.24%).

3.2 Scheduling Coefficient Matrix

The colour in the matrix indicates the value of the Scheduling Coefficient. This is defined as the ratio of runtime to runtime plus wait time. Hence, a value of 1 (green) indicates that a job ran with no time waiting in the queue, a value of 0.5 (pale yellow) indicates a job queued for the same amount of time that it ran, and anything below 0.5 (orange to red) indicates that a job queued for longer than it ran. As may be expected, the system is very busy and users are having to queue for longer than on ARCHER2. Measures were introduced to try to alleviate the queue such as limiting the large, long jobs and placing limits on the number of jobs that one user can run at any time.

Scheduling Coefficient Matrix (numbers are numbers of jobs)

The usage heatmap below provides an overview of the usage on ARCHER2 over the quarter for different job sizes/lengths. The colour in the heatmap indicates the number of CUs expended for each class, and the number in the box is the number of jobs of that class.

Usage Matrix
(Colours indicate kAU usage and boxes contain number of jobs)