



## Research Computing Governance Group

Thursday 15<sup>th</sup> January 2015 at 2.00pm-4.00pm  
Room 103, 1<sup>st</sup> Floor, The Podium Building

### Chair:

John Brodholt [JB]

### Present:

Nick Achilleos [NA]; Clare Gryce [CG]; Nik Kaltsoyannis [NK]; Owain Kenway [OK]; Jacky Pallas [JP]; Andrea Townsend-Nicholson [ATN]

### Apologies:

Richard Catlow [RC]; Peter Coveney [PC]; Mat Disney [MD]; David Jones [DJ]; Thomas Jones [TJ]; Angelos Michaelides [AM]; Christine Orengo [CO]

### In attendance:

Corrinne Frazzoni [CF] ISD (Minutes)

### Minutes

#### 1. Welcome and Minutes of previous meeting [Chair]

##### 1.1 Apologies and Membership

The Chair welcomed the Group to the meeting and apologies were noted. The following changes in the Group's membership were recorded.

- New member:
  - Andrea Townsend-Nicholson, Dept of Biosciences
- Departing member:
  - Alberto Roldan Martinez, Dept. of Chemistry (Leaving UCL)

##### 1.2 Minutes of previous meeting

The minutes of the previous meeting held on Tuesday 14<sup>th</sup> October 2014 were approved, subject to the correction of three minor typographic errors in the text of items 2, 3 and 4.

**Action: Correct typographic errors in minutes as noted [CF]**

#### 2. Report from the CRAG [NK]

NK presented a brief verbal update on the CRAG.

##### 2.1 Legion

- Lack of understanding among wider UCL community regarding policy on purchasing Legion core
  - could do with some marketing
- Need for caution regarding VAT issue
- Relatively high slowdown following November outage

**Action: Increase detail on reporting. Add extra reporting for paid usage plus time used [OK]**

## 2.2 Backfill policy for PI purchased nodes

- Options being revisited and policy being tweaked
- Farr people need training to encourage more of them to make use of purchased nodes

**Action: Discuss node usage with Farr representation at upcoming Farr meeting [JP]**

## 3. Report from Head of Research Computing [CG]

### 3.1 Staffing

- Financial approval to re-advertise the Research Computing Team Leader post (replacing Bruno Silva) pending.
  - Advertisement to be released as soon as approval obtained.
  - Owain Kenway continuing to act-up to part of the Team Leader role, overseeing day to day operations and technical leadership for projects.
- During November, the team providing core systems administration for Legion (and also supporting Research Software Development infrastructure) was moved from ISD Technology Services Dept. to ISD Research IT Services, under the line management of the Head of Research Computing and Facilitating Services.
- Gavin McLachlan, Research IT Services Director, was leaving UCL to take up a new role as CIO at the University of Edinburgh at the end of January. Clare Gryce to act as interim Director from 1st February. Thus overall management and leadership for Research Computing services would be stretched for at least the new few months.

### 3.2. Key Activities October – December 2014

- HPC Refresh Project – Project had now started with Owain Kenway leading for the Research Computing team, at this time involving: project startup paperwork, consulting with governance groups (such as the CRAG) as well as attending the MEW to talk to vendors.
- Preparing for Legion OS upgrade – During the first half of 2015 it was planned to upgrade the Legion OS to be based upon RedHat Enterprise Linux 7.0, using the team's experience in getting a subset of the applications software stack from Legion (SL 5.x) to work on Aristotle (RHEL 6.5). In preparation for this, the team had been designing and starting to build the new operating system stack, as well as working with colleagues in Computer Science who were embarking on a similar upgrade to CentOS 6.5 with the objective of making HPC platforms provided by ISD and those provided by CS a more uniform environment where possible, as well as share problem solving efforts. The RHEL 7.0 based OS would be also used for the new Linux Plato Service when it replaced Aristotle and the existing Solaris Plato service, and might form the basis of the OS for the machine at the offsite data centre.
- Remedyforce configuration – The team continuing to work with and feed back to the Remedyforce project to improve the service provided when users seek support.
- 'Aristotle' platform for Unix-based teaching – This work had extended to making the service resilient across data centres to avoid potential downtime due to planned datacentre works, as well as providing a very small amount of application support.
- e-Medlab – Owain Kenway had been providing technical advice to the MRC eMedlab collaboration.
- Centre for Innovation – ongoing liaison with colleagues at Southampton and STFC regarding operation of Iridis and Emerald services, with particular focus on the needs of UCL users.
- Account application form – ongoing improvements to this form, with upcoming changes to make it record and validate the new, MyFinance style account codes.
- Grant collaborations – the team is starting work on a project with Michael Stamatakis (Chemical Engineering) funded under the ARCHER eCSE call2. The project will fund 'backfill' staff resource into the core operational team.
- Fixing bugs with TurboMole – One of the commercial applications supported had some parallel read/write issues on both the Legion and Iridis platforms, as well as some rather hard to diagnose issues with the Intel MKL on which it relies when run on Legion. Dr Ian Kirker diagnosed and fixed these issues.
- License manager updates – the Research Computing team manages some of ISD's central (Unix) license servers at UCL that underpin scientific applications on Desktop@UCL and Departmental

platforms, as well as those available on central Research Computing platforms. Brian Alston had applied updates to these as required, including ones for:

- Mathematica
- IDL
- ENVI
- SPSS
- PGI
- ArcGIS
- Matlab

He had also resolved some issues with the SAS client license configurations on Legion and the central Solaris machines.

- Enhancing statistics generation for CRAG reporting – Owain Kenway had been working on the reports generated for the CRAG which had been overhauled with some fairly major changes as requested:
  - Reporting based on REF categories, rather than Consortia
  - Tracking of slowdown quartiles
  - Re-written reports to make them more readable
  - Slowdown reporting in addition to wait time reporting for node types
- Application Installs and Updates – see list appended.
- Data Centre Maintenance – There had been two full data centre outages within a month of one another, both for statutory electrical work. Due to problems beyond our control, Torrington Place DC was out of service longer than originally expected, which prevented the carrying out of some planned work which was to allow Legion to continue running as a reduced service, while the second Wolfson House outage took place. The unplanned events relating to the DC outages generated a considerable amount of post outage fire-fighting; the Legion Lustre hardware had a controller failure while the Torrington Place DC outage took place, it took many weeks to pinpoint the issue and get replacement parts. This had now been escalated to ISD Problem Management to ensure enough was being done to protect RC services.
- Integration of Legion Xeon Phi – the Systems Administration team had completed the full integration of the Xeon Phi into Legion’s scheduler, allowing groups that purchased the nodes to have exclusive use, while also allowing pre-emptible jobs to run on them if idle.

### 3.3. Training and Support

- Training - The team delivered the courses ‘Introduction to Unix Shell’ and ‘High Performance and Throughput Computing using the Legion HPC cluster’ during November. The following training courses were now scheduled for 2015:
  - Introduction to Unix Shell
  - High Performance and Throughput Computing using the Legion HPC cluster
  - Fortran95 (hosted instance of ARCHER programme course)

The Research Computing team were also working with the Research Software Development team to develop and deliver content into their programme of training and new taught courses.

- User Support – 503 support requests were received and responded to (via Remedyforce) during the period Oct – Dec.

### 3.4. Engagement and Communications

A Research IT Services communications strategy was being drafted that would encompass Research Computing. It would include targeted and scheduled email-based communications with service updates and news, considered use of social media and the regular development, publication and distribution of Case Studies.

The results of the User Survey completed in the previous term had been written up and a full report on key results, conclusions and any associated actions was planned for the current term.

#### 4. Cfl Future and Service Roadmap [CG]

The Group were asked to consider the proposed future roadmap for the Cfl services and to provide guidance regarding continued investment in Emerald.

It was proposed:

- that the new HPC Project provide a replacement capability for Iridis
- that discussions continued with STFC regarding the continuation of the Emerald service, with the intention being to fund the existing service until such time as the new Cloud service became available, onto which UCL researchers would migrate and which would continue to be funded from the same recurrent budget.

Owain Kenway had led discussions with UCL's current Emerald users and findings suggested that future demand existed for GPU (CUDA) service capacity equivalent to UCL's current Emerald share. As Emerald remained a specialist service with a smaller number of users, in circumstance where PIs required additional service capacity, they could be required to purchase this under the proposed Cloud model.

#### 5. 'Major HPC Refresh' project [CG]

##### Overview

A multi-year project to deliver a major technology refresh and expansion to UCL's HPC capability.

This bid for this project was bid was partly supported by the Research IT Executive. Funding of £525k was agreed, with £1m earmarked for 2015/16.

As requested by the RCGG at its last meeting in October, the Research Computing team worked with the CRAG to determine the service and technology priorities for this project. It was agreed that this project should focus on:

- Providing a replacement capacity to the Cfl Iridis service, which would terminate at the end of July.
- Replacing ageing Legion hardware with new technology, subject to budget availability.

##### Status

The project is currently in start-up. Following advice from the RCGG meeting in October, a Project Board had been convened and held an initial meeting, with the following membership:

- Clare Gryce (ISD Research Computing) – Project Executive
- Dr Owain Kenway (ISD Research Computing) – Senior Supplier and Technical Lead
- Prof Dario Alfe (Dept. of Earth Sciences and Thomas Young Centre) – Senior User representing Physical Sciences
- Dr Javier Herrero (Bill Lyons Informatics Centre at UCL Cancer Institute) – Senior User representing Life and Medical Sciences
- Mike Atkins (ISD IT Change and Project Delivery) – Project Manager

The Board had met twice to date, with current activity focused on agreement and sign-off of the Project Brief and consideration of procurement approach.

A Technical Working Group had been convened.

Activity for the next couple of months included arrangement of technical briefings from vendors, documentation of requirements, and agreement and initiation of formal procurement process.

**Action: CG to add eMedlab as standing agenda item.**

## 6. Research Computing Service Strategy [Chair]

The Group were asked to review the revised strategy document for the Research Computing Service and to provide input and feedback for further development and community consultation. The following adjustments to the Objectives were recommended:

- Move Objective 2 and combine with Objective 6
- Combine Objectives 3, 4 and 8
- Combine Objectives 5 and 10 and move up to replace Objective 2
- Delete Objective 9

**Action: Revise Strategy document to respond to feedback from group (CG)**

## 7. Research Computing Key Performance Indicators [Chair]

The Group was asked to consider the Key Performance Indicators proposed by the CRAG for Research Computing services and invited to approve these for ongoing use:

- Core Availability: Target = 95%
- Job Slowdown: Target = factor of 2 for third quartile of 75% of jobs

The target here is that at least 75% of jobs run should experience a slowdown factor of at most 2, i.e. that they wait in queue for no more than the same length of time as the requested wall-clock time of the job.

This measure was selected rather than the mean slowdown, because it is not affected by very small numbers of jobs that have exceptional requirements and are therefore subject to much longer wait times, and reflects the service experienced by the majority of users.

KPIs relating to Service Availability and Utilisation should now be considered and agreed by the CRAG and/or the RCCG.

**Decision: Accepted and approved by the Group**

## 8. Review of current Action Items [Chair]

The list of current actions from the previous meeting were reviewed by the Group, as per the attached Action List below.

## 9. Date of next meeting [Chair]

Thursday 14<sup>th</sup> May 2015 at 2pm.

## List of Current Actions

Shaded actions will be deleted after next meeting. New actions in bold type.

No	Date	Minute	Owner	Action	Status and Notes
18	27/04/12	6.3	CG/JP/JB	Consult Research Services to confirm what costs can actually be put on grants, also with regard to need to align allocation periods and processes with the research services costing. To establish what was included in the fixed estates costs for Research Computing.	27/4 – Action opened 21/11/13 – CG working with JP to plan workshop. Ongoing 04/02/14 – Combine with Action 37. Ongoing 08/04/14 – Ongoing 15/01/15 – Superseded. CLOSED
33	3/10/13		JB/JP/RC	RC - ToRs: report back on strategies relevant to research computing at faculty level & produce statement of current role and future strategy.	03/10/13 – Action opened 04/02/14 – Ongoing 08/04/14 – Ongoing; John to chase with JP and RC 15/01/15 – CLOSED
35	21/11/13	2.1	CG	CG to look into obtaining quarterly HECToR utilisation report from EPCC.	21/11/13 – Action opened 04/02/14 – CG awaiting response from EPCC - Ongoing 08/04/14 – Ongoing; some data have been provided by EPCC, others outstanding 15/01/15 – CLOSED
36	21/11/13	2.2	BS/NK/CRAG	NK/CRAG to report back on new unified Research Computing Resources Access Policy. BS to prepare document for next meeting.	21/11/13 – Action opened 04/02/14 – Ongoing 08/04/14 – Ongoing 15/01/15 – CLOSED
38	21/11/13	3	CG	To create a first draft of a new Research Computing strategy document based on meeting outcomes, and noting that £2M in 15/16 is an inadequate level of investment, for review and further work by the group.	21/11/13 – Action opened 04/02/14 – Ongoing – see previously attached Paper (Item 5) 08/04/14 – Ongoing; an analysis document has been drafted and circulated for comment <b>15/01/15 – Ongoing - revise strategy to define requirements and focus for internal team</b>
40	21/11/13	5	CG	To obtain top-line data from Research Services on income	21/11/13 – Action opened 04/02/14 – Ongoing 08/04/14 – Ongoing; pending new account application process <b>15/01/15 – Ongoing</b>

47	08/04/14	4.1	CG/OK	Provide 1-line info about each Legion node type, for information	08/02/14 – Action opened 15/01/15 – CLOSED
48	08/04/14	4.1	JP	Check Farr contract dates on dedicated allocation	08/02/14 – Action opened 15/01/15 – CLOSED
49	08/04/14	7	CG	Re-circulate Data Centre business case to group with summary of process that was followed to produce report	08/02/14 – Action opened 15/01/15 – CLOSED
50	14/10/14	4	CG	Major HPC Refresh Project - CRAG to be asked to make recommendations on possibilities for capability and capacity	14/10/14 – Action opened 15/01/15 – CLOSED
51	14/10/14	5	CG	Research Computing Service Strategy - revise strategy to define requirements and focus for internal team	14/10/14 – Action opened 15/01/15 – CLOSED (combined with no. 38)
52	14/10/14	5	JP/JB	RCGG asked to nominate two members of academic staff (one from physical sciences/engineering, one from life/medical sciences) to serve on the Project Board, and to assist in securing their engagement.	14/10/14 – Action opened 15/01/15 – CLOSED
53	15/01/15	1.2	CF	<b>Correct typographic errors in minutes as noted</b>	<b>15/01/15 – Action opened</b>
54	15/01/15	2.1	OK	<b>Legion: Add extra reporting for paid usage plus time used</b>	<b>15/01/15 – Action opened</b>
55	15/01/15	2.2	JP	<b>Backfill policy: Discuss node usage with Farr representation at upcoming Farr meeting</b>	<b>15/01/15 – Action opened</b>
56	15/01/15	4	CG	<b>EMERALD – discuss extension with users</b>	<b>15/01/15 – Action opened</b>
57	15/01/15	5	CG	<b>Add eMedlab as standing agenda item</b>	<b>15/01/15 – Action opened</b>