Informatics Computing Plan 2011

School of Informatics

March 21, 2011

1. Long-term vision and strategic objectives

Informatics Computing serves over 300 staff (230 teaching and research), nearly 300 research students, over 200 taught postgraduate students, around 500 undergraduates, and over 100 visitors and associates.

The aim of the Informatics Computing Service is to ensure that members of the School of Informatics (staff, students and visitors) receive computing services necessary for their research, teaching and knowledge transfer activities. These services should be efficient, state-of-the-art, fit to users' requirements, and good value for money. Appendix A outlines the evaluation processes that we have established to ensure that we are fulfilling this aim.

Strategic objectives

We have four principal aims underpinning the Informatics Computing Strategy:

S1 Maintenance, review and update of state-of-the-art computing environment for all members of the School.

S2 Maintaining an optimum level of interoperability of Informatics Computing with College and IS services.

S3 Development and deployment of new computing services.

S4 Engagement with international best practice.

We have specific objectives relating to the computing infrastructure and to the activities of the School: research, teaching and knowledge transfer :-

Infrastructure We are committed to providing an infrastructure that ensures that members of the School get those services that they need. These services may be provided by the School or centrally. Using centrally provided services, particularly commodity services, releases effort to better meet specific research/teaching needs and to develop new services.

I1 Transfer of commodity services to IS (or College), and working with IS to ensure that centrally provided services meet the needs of Informatics.

I2 Provision of Informatics know-how and technologies to college and university level, and beyond.

I3 Development of new services.

I4 Review and evaluate computing infrastructure change taking account of changing user needs and general computing trends.

Research In addition to providing a flexible, responsive environment for research in the School, we must meet the specific research requirements across our research institutes, and structure research computing support to be well-matched to the ways researchers propose and carry out research projects.

R1 Continued development of lightweight, responsive support for research computing that is fully compatible with full economic costing of research

R2 Ensuring that Informatics users get efficient, responsive access to high performance research computing and storage facilities

R3 Provision of support for interdisciplinary and collaborative research projects (eg SICSA, InSpace, CSBE).

R4 Development of prototype services from R&D projects (eg Data Intensive Research machine)

Teaching In addition to providing a stable environment for the School's teaching activities, we shall develop appropriate instrumentation in the teaching environment to support research/teaching synergy.

T1 Support research-led teaching by providing support for the transfer of research tools to our standard teaching platform.

T2 Ensuring that our infrastructure complies with open e-learning standards where possible.

T3 Support appropriate assessment of students (eg online examinations).

Commercialization and knowledge transfer Informatics Computing can support the School's knowledge transfer activities by providing a bridge between research and use.

C1 Using the School's commercialization infrastructure as a driver to develop prototype services from applied research in Informatics.

Management Information We aim to support planning and decision making through the timely and effective maintenance and provision of Management Information.

Strategic assumptions

The computing strategy outlined in this document makes a number of assumptions.

- Informatics computing does not take place in a vacuum and our strategy reflects a number of general computing trends, such as mobility and multimedia computing.
- Several of these objectives require additional resourcing (eg via JISC, the Research Councils, SFC) and thus there needs to be some complementarity with the aims and objectives of the political and funding environment.

2. Report on 2010

Goals

1. **Goal** Continued consideration of migration to central IS services (mailing lists, Subversion, Pcounter for teaching lab printers)

   Progress
   - The proposed mailing lists service has only recently entered service.
   - The central IS subversion has recently (October 2010) gained iFriend support and now appears to be a suitable alternative to our own service.
   - We are in the process of deploying Pcounter for our teaching lab printers.

2. **Goal** Consideration of relationship with IS help desk

   Progress This was postponed until the introduction of UniDesk. Carried forward to 2011.

3. **Goal** Consideration of appropriate use of central data storage facilities

   Progress We have engaged with Peter Clarke's exercise. We are particularly interested in the proposed central archiving service as this is an area we are currently weak in. Ongoing to 2011.

4. **Goal** Migrate School web site content to Polopoly

   Progress We have migrated much of the School's outward facing web content to Polopoly and are continuing to identify which of the remaining content will migrate. We have established a web policy. Ongoing to 2011.

5. **Goal** Migrate to existing central Call Management System

   Progress It was decided that the upheaval of moving systems twice (to CMS and then to UniDesk) was not outweighed by the benefits of an early move. We intend moving to the new UniDesk system in 2011.

6. **Goal** Consider move of content from School Wiki to IS Wiki and enact if appropriate

   Progress We have experimented with the automated tools for converting content between the two Wikis and concluded that they are sufficiently usable to make a move viable. A development project in early 2011 will manage the migration.

7. **Goal** Complete move of research publications from School Database to central ERA system (continued from 2008/2009)

   Progress Ongoing (mostly completed)

8. **Goal** Continue identifying ways in which School can align itself with University e-Learning strategy.

   Progress The University wide group discussing e-Learning strategy has been disbanded. We have formed, with other CSE schools, a small group to identify a suitable VLE.

9. **Goal** Engage with University wide deliberations on server virtualisation technologies.

   Progress We have engaged where possible, though progress has been slow. We have recently evaluated the IS central service.

10. **Goal** Continued consideration of our existing commitments given that there are no realistic prospects of regaining lost staff resources

    Progress Ongoing.

11. **Goal** Ring-fencing 5% of individual computing staff's time for staff development (with 10% as aspiration)

Progress Varies widely between individuals. Still difficult to achieve as we have not significantly reduced our commitments.

12. **Goal** Implement strategy developed in 2008/2009 for addressing the increasing move to portable and/or personal machines.

    Progress Mostly implemented, though difficult to measure success of strategy. Some remaining work outstanding to be completed in 2011.

13. **Goal** Review and update structure and content of end user documentation.

    Progress Review carried out and user focus group created. Slow progress, hampered to an extent by deliberations as to which CMS system to use for School web content.

14. **Goal** Implement plan to improve communication between users and computing staff

    Progress Mostly implemented with some success. Again difficult to measure success. Consider an ongoing action with more approaches to be attempted.

15. **Goal** Continue work on critical School/EUCLID database enhancements.

    Progress Completed.

16. **Goal** Re-factor existing School database to improve maintainability, in light of significantly reduced EUCLID scope.

    Progress The core requirement is very close to completion, although there is a large snagging list. A large body of non-core requirements and a number of features to assist with maintenance stalled from earlier remain. PGR data and the IGS is now entirely on the new system.

17. **Goal** Consider requirements for knowledge management functions other than those related to teaching administration (eg research grant management)

    Progress No progress due to volume of School database work related to EUCLID descope.

18. **Goal** Deploy new account management framework (continue from 2008/2009)

    Progress Framework has been deployed. More development work is required to make the most of the new framework - development projects in 2011.

19. **Goal** Rewrite of the LCFG core to improve maintainability and extensibility (continue from 2008/2009)

    Progress Some progress but currently stalled due to other projects. Will restart in early 2011.

20. **Goal** Port of LCFG to Scientific Linux 6 (or other RHEL6 derivative)

    Progress RHEL6 did not ship in 2010. Instead a port of LCFG to Fedora 13 was carried out.

21. **Goal** Upgrade DICE desktops to Scientific Linux 6 (or other RHEL6 derivative)

    Progress RHEL6 did not ship in 2010. All teaching DICE desktops were upgraded to Fedora 13. Staff desktops were upgraded to Fedora 13 where requested.

22. **Goal** Consolidation of existing backup services

    Progress A new tape library was purchased. All but backups of selfmanaged machines is now performed using TiBS. A project to support selfmanaged machines using TiBS is almost complete.

23. **Goal** Review of resilience to disasters.

    Progress A review was carried out and improvements identified. Some improvements have been made - others still to be actioned. Ongoing.

De-prioritised areas

- **Goal** Completed move from Forrest Hill server room

  Progress Completed

Relationship with IS (and other schools)

- We continued efforts to improve technical collaboration with IS and other schools :-
  - Continued LCFG SL5 platform maintenance, used by many schools in CSE.
  - Co-hosted, with IS, a workshop focusing on School's experiences of deploying LCFG.
  - Continued with regular LCFG deployers' group, with members from IS and various other schools.
- Represented ITPF on UniDesk project board
- Have formed a group, with other CSE schools, to identify a suitable VLE for use within CSE.

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3. Revised plan for 2011

Goals

1. Review of Computing team role and structure
2. Consideration of our existing commitments given decreasing salary and non-salary budgets.
3. Migrate to central IS subversion system
4. Consideration of relationship with IS help desk
5. Migrate to new UniDesk system
6. Review requirement for Condor deployment given increase in ECDF capacity
7. Continued consideration of appropriate use of central data storage facilities
8. Engage in requirements capture for and design of proposed central archiving service
9. Continued migration of school web site content to polopoly, where appropriate
10. Migrate content of old School web service to new CMS service, where appropriate
11. Move content from School Wiki to IS wiki
12. Migrate to IS mailing list service
13. Complete re-factoring of School Database (database engine and client), and complete move of data and users from old system to new. Review what re-factoring is necessary for remaining ”legacy” aspects.
14. Consider how best to maximise benefit of new School Database by reviewing which additional, often standalone, services can be brought into or better integrated with the School Database.
15. Implement additional School Database functionality to support ISS planning and budgeting
16. Implement Course-in-a-Box driven by School Database
17. Consider requirements for knowledge management functions other than those related to teaching administration (eg research grant management)
18. Consider relationship to shared timetabling project
19. Improve process for capturing teaching course computing requirements
20. With other CSE schools, identify a suitable VLE system.
21. Support ISS in developing their open courseware vision.
22. Port of LCFG to Scientific Linux 6 (or other RHEL6 derivative)
23. Upgrade DICE desktops and servers to Scientific Linux 6 (or other RHEL6 derivative)
24. Rewrite of the LCFG core to improve maintainability and extensibility (continued from 2008/2009/2010)
25. Move machines to central IS virtualisation service where appropriate
26. Continue developing in-house virtualisation service (likely using technology developed in EPCC)
27. Extend use of desktop virtualisation by encouraging users to adopt the technology - and facilitate this.
28. Consider how desktop virtualisation can be extended into a laboratory environment.
29. Continue development work to take advantage of new account management framework (eg implement account lifecycle)

30. Continue updating structure and content of end user documentation
31. Produce guidance on resources available for research projects (eg software repositories, wikis, VMs for software preservation etc).
32. Consider how to improve access to School services from mobile devices
33. Implement remaining improvements identified as result of review of resilience to disasters.

Recurring goals

1. Further consideration of migration to central services
2. Further promote School developed solutions to the rest of the University and beyond
3. Invest in automating frequently performed manual tasks, where cost effective to do so.
4. Further improve communication between users and computing staff
5. Ring-fencing 5% of individual computing staff's time for staff development

De-prioritised areas

- subversion
- mailing lists
- call management system
- retrospect remote backups for macs

Relationship with IS and others

Our collaboration with IS, and with other schools in the College, is focused on a migration to central services where appropriate, significantly increased technical collaboration, and interactions at a technical and strategic level (also outlined in appendix C).

- We strongly hope that the port of LCFG to Scientific Linux 6 will be a collaborative venture with either IS or another school.
- Continued consideration of migration to central IS services.
- We are very keen to collaborate with other CSE schools on development and even service delivery - consider more scope for success here.
- We are concerned about the demise of the ALD position and the resulting link to IS sernior management team
- We are considering making use of the IS virtualisation service
- Concern over lack of matching policy to practice (eg DPA and mobile devices)
- Continue to work with IS to bring out-of-band data into the standard EUGEX feed mechanism (this probably needs to be an IS project).
- Concern over lack of progress in deploying CaptureED in Forum
- Procurement - in absense of progress in university wide server procurement exercise, have developed our own procurement procedures

Obstacles

- We continue to operate with a substantially (25%) reduced non front-line staff resource. This is having a detrimental effect on our ability to innovate.

- The Pcounter project has demonstrated that making use of Active Directory authenticated non web services from our Linux platform is difficult.

What we would like of IS

- With regards to the discussions on outsourcing the University's email, whilst we understand the financial drivers for outsourcing email, we strongly regret the need for us to undergo the disruption of changing mail service again, only two years (three, by roll-out, perhaps) after we moved to Staffmail. We have a general concern that, if IS cannot commit to more stability of core services than this, it becomes much less attractive for us to migrate to IS services than it would otherwise be. Disruptions such as this are associated with considerable (opportunity) cost in Schools, and we would like to be reassured that IS is aware of this and takes it into consideration.
- When capturing requirements for a new proposed service, it would be very useful if IS were to clearly explain why any requested feature has been rejected. Too often, requested features have been seemingly ignored. This leads to frustration and individuals have become reluctant to expend effort in providing input to future requirement captures. Better communication during IS's decision making process might also sometimes help to discover cheaper ways of providing a feature. At the least, we would like to feel confident that, when a feature is rejected with the effect that we are unable to use a service at all, this is done for a good reason and not just because our requirements have been misunderstood or ignored.
- Provision for data archiving and, perhaps, curation.
- Engagement with our review of requirements for knowledge management functions other than those related to teaching administration.
- Audio Visual support from LTSTS for non Informatics events in the Forum

4. Plan for 2012

Goals

1. Implement any changes to CO team structure as a result of review undertaken in 2011
2. Further consideration of migration to central services
3. Further promote School developed solutions to the rest of the University and beyond
4. Further improve communication between users and computing staff
5. Ring-fencing 5% of individual computing staff's time for staff development
6. Further consider how best to maximise benefit of new School Database by reviewing which additional, often standalone, services can be brought into or better integrated with the School Database.
7. AV and video capture installed in tutorial rooms
8. Investigate cost/benefits of implementing a personalised desktop for students
9. Consider an ePortfolio system
10. Identify enhancements to the School database to better support tutors and demonstrators

De-prioritised areas

Unknown at this stage.

Relationship with IS

More collaboration.

A. Evaluation

We have established a number of evaluation processes, to ensure that we are delivering a service in line with our strategic objectives.

- **Fit to requirements** User requirements are captured using various mechanisms. Teaching requirements are met through a stable and well established system for the collection, negotiation and delivery of computing requirements. We have implemented a newer mechanism to capture research computing needs, based on a basic level of recharge per researcher, in return for which certain services (eg disk space, network connectivity, cluster computing usage) are provided. Specific requirements are also captured in depth via focused innovation meetings, to which all members of the school may attend.
- **Value for money** This is a criterion for the annual review document, and is related to transparent support for research computing, centralised procurement that remains close to academic needs, and official audits of various research project expenditure.
- **Objective evaluation** Each unit provides a quarterly report, which includes proportions of staff time spent on various activities, projects undertaken, etc. This data is used to inform strategy, and management: for example, consistently lower proportions of time spent on development activities (due to operational demands) than planned can be identified, and emphases changed.

B. Staffing and Resources

The school employs 22 computing staff (20.6 FTE).

There are 830 managed DICE (Linux) desktops; 540 personal machines for staff and research students, and 290 in student labs (7 undergraduate teaching labs and 2 tutorial rooms). There are a further 90 managed Windows desktops for administrative staff.

In addition there are several hundred self-managed Linux, Mac OS and Windows desktops and laptops.

There are around 150 managed DICE (Linux) servers, and a further 24 beowulf nodes. Our servers are housed in 3 air-conditioned machine rooms, with a total area of around 160 m^2.

C. College, University, External Relationships

The School has a high degree of interaction and engagement at the College and University level, arising in particular from the expertise within the School. We are engaged with university committees concerned with authentication, security, and information architecture, for example, and play a leading role in envisioning the development of computing at a university level. Externally, our computing staff interact intensively with organizations such as Usenix and UKUUG through workshops, conferences and tutorials.