Institution Strategy & Media Services

1. Members of the Institution Strategy team have assisted with a number of IT support staff recruitments and have continued to run a programme of seminars for the continuing professional development of IT staff across the University. They have also been involved in the staging of two conferences over the summer period, working with colleagues in Oxford for a joint conference for Oxford and Cambridge IT staff and with HE colleagues further afield for the UCISA Support Staff Conference. They are currently also conducting a review of a College.

2. The Print Room was one of the first UCS services to move to West Cambridge, taking two weeks to be up and running in time for mid-September and production for the start of the University year. In addition to the move they have successfully delivered three hundred print jobs since the last report.

3. The Photography and Illustration Service (PandIS) has been covering every Full Congregation of the Regent House; in particular, for General Admission this year, 40 staff generated 9-10,000 photographs delivered to graduands within three weeks of the event.

4. On 19 June Double Exposure launched the London Underground Photography Exhibition, PandIS' most successful exhibition to date with over 600 visitors to PandIS over the summer period, including a TV documentary crew from South Korea.

5. PandIS were also able to provide all the signage for the refurbished Roger Needham Building in advance of the UCS and MISD moving in during September.

6. The Web Conferencing & Collaboration project along with the DS-Connect service based around Adobe Connect continues to develop and has been utilised by a steadily growing number of institutions. The current pilot users span eighteen institutions around the University along with an increasing number of conferences, committees and blended learning sessions. A Master of Studies programme at CPSL, which relies on this service, is now into its second year.

Networks

Network Outages

There were no recorded major outages during this period.

CUDN

7. The bulk of work by the Network Systems group has been related to the move of equipment out of Arup 301 and to the Central Network Hub, Soulsby Building and Roger Needham Building.

8. The CUDN's connection to EastERN/Janet has been upgraded from a single 10Gbit/s to a pair of bonded links running at 20Gbit/s. The links from the border router (route-enet) to the two core routers (route-cent and route-mill) have been upgraded similarly (to a bonded pair at 20Gbit/s).

9. It should be noted that this probably the last upgrade possible with the current CUDN backbone router equipment and either a replacement or major upgrade will be required to upgrade the backbone links on a wide-scale (probably to introduce inter-router links using 40Gbit/s ethernet).

10. It is also not clear how the development to introduce a second EastERN/Janet connection during summer 2014 might proceed as there is no remaining capacity on the core routers without further line cards.

11. The Engineering Department and Computer Laboratory have migrated from legacy OSPF connections onto the CUDN backbone to the BGP service, bringing them in line with other institutions rather than being special cases. In both cases, assistance was provided to the COs in those departments with the configuration.
The Telecoms server networks have also migrated to BGP connections (one per site). In addition, the UCS network for staff in the Roger Needham Building has been configured with BGP. This brings the number of internal Autonomous Systems (ASs) using the BGP service to 6.

The reorganisation of multicast on the CUDN has been completed: IPv4 multicast is now redundant and MSDP is used for inter-domain multicast (to institutions with their routers using BGP) which provides a supportable configuration with clear administrative boundaries. IPv6 multicast is now enabled and supported using CUDN-wide All Sources Multicast (ASM), inter-domain [Internet-wide] Source Specific Multicast (SSM) and inter-domain ASM using Embedded RP. There are two minor remaining issues: the CCTV system is using groups reserved for pan-European research but is in the process of renumbering, and IPv6 multicast is not publicly documented.

**Wireless**

The Aruba wireless system is in the process of being migrated to new hardware (3x new 7220 controllers supporting 1024 APs each replacing 4x 6000/M3 controllers supporting 512 APs each). One controller is used as a redundant node in an N+1 configuration and a fourth 7220 is likely to be required in the near future due to the large roll-out of Chest APs in progress (and other orders by non-Chest institutions).

Connectivity to the controllers is also being upgraded to introduce redundancy regarding the routing and should be complete by the end of the week ending on 4th October, in preparation for router moves.

Other configuration changes have been required to support new models of access point (e.g. RAP-3WN).

Work on replacing the Lapwing Console web interface is ongoing and expected to be launched in the next few days/weeks.

**GBN**

Work on the Addenbrooke’s 2nd link is complete and the university hospital now has a diverse CUDN connection to the Clinical School, via Hills Rd.

The GBN node in the CNH room is complete. There are a few remaining circuits that need diverting from the Machine Room 310, and these will be done before November.

The GBN extension from the New Museum Site to King’s Benet St hostel is complete and working.

2.5km of GBN duct diversion for the North West Cambridge Project has been completed. The cabling has been completed but we are waiting on the circuits to be diverted. This is due for completion beginning of October.

Cabling diversions complete and circuit removed from Fenners, except for Fenners CUDN connection which is serving the few remaining occupants.

The footprint of the new Maxwell Centre building being added to the northern side of Physics of Medicine sits on top of the GBN and will require diverting. Works on the Maxwell Centre are due to start in early 2014. GBN has submitted estimate of £94k +VAT to divert network. Work is due to start on duct diversion in late September.

GBN extension along Glisson Rd & across to Russell St completed, connecting college hostels for Fitz, Catz & Christ’s.

Roger Needham Building

Duct extension from Whittle Lab completed to Roger Needham Building. Completed GBN node installation into Main Equipment Room of RNB.

Westminster College & Kettle’s Yard are both connected to the GBN via a 3rd party connection, provided by Fibre City, and both are 5 years into a 10 year agreement. Wescott House is proposing to build a development within the grounds of Westminster College and the footprint of the building sits on top of the Fibre City network. Both organisations are keen to get a direct GBN connection in the mid-term, but the proposed development will require Fibre City to divert their existing
network, at some cost to Westminster College. It has been suggested that the GBN purchase the Fibre City network and then deal with the diversion internally. Fibre City is reluctant to sell their network. A solution to solving the various parties’ interests needs to be sought.

29 Work has started on the Gisbourne Ct development at Peterhouse, which caused the GBN to be temporarily diverted. A permanent route has been established and works are progressing.

30 Supporting the ADC Theatre has been an aim of the UCS for some time. The refurbishment of the ARUP Building has raised the issues as their current connection via BT is presented in room 301, and it will not be possible to support after the end of June. EMBS are seeking permission from the Pitt Club. The GBN is in position to implement this once permission has been granted.

31 It has been proposed to extend the GBN to the VC’s Lodge as an upgrade of the existing 10mb BT network connection. Order has gone out to contractor to start works on 25th September, and aiming for completion date of late October.

32 Lucy Cavendish have requested GBN to be extended to 100 Histone Rd. Propose to extend GBN from outside 112 Huntingdon Rd, picking up several college hostels along the way. Currently seeking quotes. Completion by August 2014.

33 Girton College is building new accommodation block. Initial GBN diversion was required as footprint of building sat on existing GBN route. Diversion completed. Waiting for building contractor to request GBN feed into Ash Ct.

34 Caius requested 4 Gresham Rd be connected to 5 Gresham Rd, which was connected to GBN last year. Duct and cabling extension completed.

35 CAPE building having extension put on side of existing building. Surveying to assess if any enabling works are required.

36 Five Fitzwilliam College hostel GBN connections were co-ordinated into the GBN Huntingdon Rd GBN diversion, due to the NWC Project. All duct extensions and cabling works have been completed.

37 Zoology have requested a fibre connection between their sub-department, located at the rear of the Three Horseshoes pub in Madingley, and Madingley Hall, to replace their existing connection currently supplied by Virgin Media. Feasibility and costs are being assessed.

38 Trinity Hall proposes to build a new hostel on Thompson’s Lane, the footprint of which will sit on the GBN. Trinity Hall waiting for planning consent.

Network Installations

39 New CUDN PoPs have been installed at the Soulsby building (MISD). Other enabling work has been completed for the Central Network Hub for the Computing Service (UCS) and the Roger Needham building (UCS and BMS/CCTV).

40 New single mode optical fibre cabling for primary and secondary CUDN PoP connections has been completed on the New Museums site.

41 A new CUDN cable for Zoology is planned for completion during October 2013 to bypass asbestos-contaminated areas of the Arup building.

42 Work is in progress to provide cabling and support for the CUSU Freshers’ Fair in October 2013.

43 Work is in progress to migrate the JANUS security system to new GBN optical fibre connections to replace legacy equipment that is affected by the Arup building project.

44 New modular optical fibre network cabling has been completed for the Central Network Hub (CNH) room and the Main Equipment Room (MER) at the Roger Needham building. These installations are modelled on the solutions proposed for the West Cambridge Data Centre project.

45 New optical fibre for linking legacy Zoology, Materials Science and Archaeology networks on the New Museums site has been completed.

46 Installation work associated with the UCS staff network in the Roger Needham building has been completed.
GBN-related installation work is reported under the GBN operations report and includes new circuits to replace those affected by the decommissioning of the Arup building and the relocation of both MISD and the Computing Service to West Cambridge.

Telecoms

For the past six months, much of the group’s time and effort has been taken up with the equipment and staff moves to West Cambridge.

The migration of the core Call Manager phone system went quite smoothly. Virgin Media were quite efficient in the movement of their lines and equipment. British Telecom were, as usual, less effective. It took much effort to get the differing arms of BT to talk to each other, to understand the scale of the works involved and to appreciate the nature of the deadlines required.

There is a plan to upgrade the Call Manager phone system from version 8.6 to 9.1 over the Christmas break. After that, the Service will be looking to replace the servers that Call Manager runs on. As part of the moves, the central PSTN gateways were replaced.

Another large piece of work was the migration of the University’s mobiles from Vodafone to O2. The Telecoms Helpdesk team put a lot of effort into making this a success. There are some remaining problems with coverage in the Mill Pond & Sidgwick site areas. The Service is working with O2 on both short term and long term solutions to these problems. Despite this, there have been about 170 new mobile connections since the move to O2. The University currently has approximately 1,800 mobiles under contract with O2.

After much delay, the contract for PSTN calls was signed with Virgin Media. This is expected to reduce the University's phone call costs by at least 10%. It will also allow the Service to decommission the GSM gateway, and so provide outbound Caller Display on calls to UK mobiles, something a GSM gateway is unable to provide.

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There has been renewed interest in a central pager service from several departments. The Computing Service had been winding this down as it expected mobiles to take over. The current equipment is obsolete and works intermittently. The Service is looking to replace it with a more modern system, which is intended to be integrated into the admin.phone system, and possibly my.phone.

User Services

Desktop Services

Desktop Services infrastructure and servers have been relocated from the Arup machine room to the RNB (Roger Needham Building, West Cambridge) machine room and CNH (Central Network Hub, New Museums Site). This has improved resilience by introducing geographic separation across core services. The new topology includes a split VMware cluster and a dedicated 10GbE internal storage network linking the two locations using dark fibre. The resiliency ensures quicker recovery times in the event of a disaster and reduces the need for downtime.

The main Desktop Services Filestore is now replicated across both new machine room locations allowing for greater availability in the event of disaster.

Churchill College has joined the Managed Cluster Service (MCS). This takes the number of sites up to 43 (19 departments and 24 Colleges) with interest continuing to be shown by other institutions.

The MCS Windows Desktops have been migrated to Windows 7 and all instances of the aging Windows XP have been removed from service. Requested applications have been prioritised and packaged for use under Windows 7. Applications previously available under Windows XP have not been automatically ported to Windows 7 allowing for housekeeping of older and unused software.

The Titan teaching rooms have been relocated on the New Museums Site. The hardware used to provide the MCS in these new rooms has been completely replaced.

Two training rooms have been set up in the RNB running the MCS, which also provides facilities for MISD’s training needs as well.
DS-Print continues to expand with four additional institutions joining the scheme during the reporting period. DS-Print is currently the biggest growth area within Desktop Services.

The MCS User Survey finished in June with 1,234 respondents. Many users wanted greater provision of the MCS across more sites, with developments in the fields of mobile accessible storage, remote access to a desktop and printing, and enhancements to support visitors and Linux users.

**Desktop Services Outages**

- **16 Jul** DS Filestore: Three short (less than 30 minutes each) outages occurred during the day with the first commencing at 10.15. The root cause was identified (a malfunctioning software update) and full, reliable service was restored at 15.51.
- **20 Aug (33min)** DS Filestore: Performance issues affecting a small number of users were initially identified shortly after 12.30. Service was restored at 13.03 following an investigation to identify the root cause.

**UCS IT Exhibition 2013**

Preparations are continuing for the 2013 IT Exhibition which will happen on Wednesday 20th November in the Examinations Halls on the New Museums Site. The event will brings together thirty exhibitors into one place and has a parallel TechLink programme for University staff involved in IT support. Free refreshments are available throughout the day along with a prize draw and interactive computing ‘play’ area.

**Service Desk**

- The Service Desk processed a total of 9,155 requests over the reporting period and resolved a total of 3,425 technical enquiries from amongst the total number of Service Desk requests.
- The University Telephone Switchboard (part of the Service Desk team) dealt with 9,999 telephone enquiries over the same period.
- Over the summer a second Service Desk location has been established, with the main Service Desk now operating in the Roger Needham Building on the West Cambridge Site and a satellite Service Desk remaining available on the New Museums Site. The Satellite Service Desk will only be made available during term.

**Institution Support**

- As part of the UCS move to West Cambridge, Institution Support has relocated numerous hosted servers and systems from the old Arup301 Machine Room to the Soulsby Building Machine Room and Central Network Hub.
- Additional hosting services are now being provided for Ridley Hall to augment the off-site back-up service already provided.
- The University Dental Practice has had its Specialist Dental Software updated.
- The local network at the Office of Intercollegiate Services has been re-configured to accommodate various relocations of equipment.
- A major project has commenced at the Vet School to overhaul their entire IT infrastructure over the course of the next two years has been commenced.
- The off-site backup service has continued to see steady growth during the reporting period.

**Technical User Support**

- Mac Support and Windows Support servers have been moved to the RNB machine room including the Windows update servers (used university wide) and the UCS Software Sales servers.
- Mac Support staff have upgraded all MCS Macs to use OS X 10.8.
- The UCS public FTP server ftp.csx.cam.ac.uk has been upgraded and virtualised.
- The infrastructure required to provide a central Active Directory across the University has been established. This Active Directory, ad.cam.ac.uk, enables existing Active Directories to tie into the associated DNS structure or Institutions can request a delegation for their own institution,
institution.ad.cam.ac.uk. Early adopters include managed Desktops within the UCS, the Vet School and the StASSH storage project.

**Special Exams**

76 Exams took place over 23 days, involving 56 sessions across two rooms, candidate numbers topping 70 in total on six days with a maximum 87 candidates on 4 June. The UCS accommodated 849 individual exam places, a significant rise from 596 of last year, due to the Exams Board requesting all candidates' exams should be centralised on the New Museums Site rather than in College.

**Training Services**

77 During the reporting period, a vast amount of time and effort has been dedicated to planning and preparing for the relocation of the Titan Teaching Rooms from the Arup Building to floor 2 of the Cockcroft Building on the New Museums Site. The new facility offers the option of combining two 40-seat rooms into a single 80-seat teaching facility with interlinked audio visual capabilities. The project was achieved within an extremely tight time frame and opened as planned on the 23 September.

78 Work has progressed with establishing two training rooms in the Roger Needham Building. Both rooms can accommodate 14 delegates and are linked with a sliding partition to provide an interlinked 28-seat combined space. The rooms are a shared resource for UCS and MISD training providers to deliver their training provision.

79 As part of the temporary repurposing of the Phoenix User area as a Mac teaching room, new audio visual equipment has been installed and the intention is to refurbish and change the layout of the room during Michaelmas term to enhance the teaching environment.

80 Scheduling for the UCS IT Training Programme 2013-14 has been significantly more complex this year due to the new multi-site location of teaching and training rooms. UCS and MISD training providers have worked together to ensure optimum use of the training rooms at the Roger Needham building.

81 The UCS IT Training Programme brochure detailing UCS training for Michaelmas 2013 has been published. Personally addressed copies have been distributed to all University staff.

82 Due to the success of the initiative to provide Microsoft Office certification courses, a further Excel Expert course and a new Excel Core course have been delivered.

83 As part of the University’s programme to update its web pages to the new ‘Project Light’ templates, the suite of courses for the UCS Falcon Content Management Service was augmented with the delivery of the following three new courses:

(i) Falcon Further Topics: Organising, Designing a Site and Getting to Grips with the New Templates
(ii) Falcon Further Topics: More on Creating a Research/Person-based Directory
(iii) Falcon Further Topics: Setting up Forms and Creating Content Rules.

**Online Services**

**UCS Systems Relocation**

84 Since the last Syndicate report the Service has moved its servers out of the soon-to-be-refurbished Arup machine room, its home since the 1970's. The servers have been moved to a mix of permanent and temporary locations prior to the move into the West Cambridge Data Centre in summer 2014. The opportunity (via the freeing of funds for the move) was taken to make a number of changes to our servers which both simplified the move and which put us in a better position to continue reliable service into the future. Not least of these changes has been the move to widespread virtualization. The vast majority of UCS servers now run on virtual machines built on VMware. VM hosts were established in all the target locations and the services virtualized. This greatly reduced the amount of hardware that had to be moved between locations. It has also reduced the overall electricity consumption. The move to multi-site VM hosting also makes it easier for the Service to offer reliable facilities into the future as VMware supports seamless
migration of services between hosts, should one of the new rooms need to be deactivated for any reason.

Certificates

The Service has made local changes to its TLS Certificate handling processes to match Janet changes. Wildcard and Extended Verification certificates are now available from Janet and are being used. This leads to increasing amounts of staff time required for the additional verification stages undertaken. Current estimates are that the Service will process around 500 certificate requests this year, all requiring manual effort. The UCS currently absorbs the costs of basic certificate recently introduced by Janet and it estimates this will cost around £10K per year to provision.

Linux

Across the division work continues with a programme to migrate its servers from SUSE Linux Enterprise Server version 10 to version 11SP3.

Streaming Media

Audio-video recording and streaming facilities were provided for the 2013 COSMO conference hosted by the Centre for Mathematical Studies.

The SMS is now offering 720p resolution videos and HTTPS delivery (important for embedding video in HTTPS web pages).

Human Tissue Tracking Database

The application to support the tracking of Human Tissue in the University has been rolled out, and is now being used in the Department of Pathology.

Some changes have been made to the ucam_webauth authentication protocol to distinguish "current staff and student etc." accounts from "Raven for life" accounts. A new version of the Raven Apache module has been shipped to support this change. Users of the old module will continue to authenticate "current" accounts and not authenticate "former" accounts. (So no change to systems gives no change to behaviour.) The new version of the Apache module also supports the new Apache 2.4 web servers and fixes various bugs. Apache 1.3 servers have ceased to be supported, though the previously released modules will continue to work.

Web Support

The Service has inducted a new member of staff into the Web Group but has lost another member in the meantime. The Group remains a post down and recruitment to fill the vacancy is proving difficult.

Various staff members are familiarizing themselves with the Django web framework, which has been identified as an appropriate framework for mid-scale developments, with Groovy on Grails being reserved for the larger projects. The Shibboleth metadata management application will be written in Django.

There continues to be ongoing support for Project Light.

The Service is developing the Funnelback system for web search in the University with roll-out expected over the Christmas Vacation.

The Falcon migration to Project Light and Plone 4.2.6 was completed at the end of September and the remaining sites were automatically transitioned. Falcon now supports over 120 live University sites, over 200 if the sites currently in development prior to go-live are included.

Support for the University map continues with ongoing surveys and data updates. The official Cambridge iPhone App, developed by the Office of External Affairs and Communications, now uses the University's map tiles rather than generic OpenStreetMap ones, as does the CamExplore desktop and mobile web site supporting the University's Open Days. A list of interesting use cases is being developed at https://wiki.cam.ac.uk/university-map/Case_Studies.

eMail

Hermes is now 20 years old and supports roughly 30,000 active users each week. Its webmail interface was dramatically improved by the integration of the RoundCube webmail interface over
the summer, to provide a more modern browsing experience. Some users have chosen to stick with the old system and it will continue to be run on the URL old-webmail.hermes.cam.ac.uk for the next few years.

**Scientific Computing Support**

98 Scientific computing support has been provided for the Square Kilometre Array project, Cancer Research UK and Plant Sciences.

**Joint Schools Filestore**

99 The StASSH project, to provide central CIFS storage for backups for the School of Arts and Humanities and the School of Humanities and Social Sciences is drawing to completion. The hardware is now installed in the Soulsby Building and the Central Network Hub. Training has been provided to the staff operating this service.

S. Kearsey
17 Oct 2013
Service Statistics

October 2013

Raven Usage

Falcon Usage

- Hosts
- Users (x100)

- Sites
- Hits (million)