UNIVERSITY OF CAMBRIDGE
Department of Computer Science and Technology

IT Strategy Committee, Department of Computer Science and Technology
2nd December 2024 at 14:00
SW00, William Gates Building

MINUTES

Present

Richard Mortier, Chair [RM]
*Steve Cummins, School of Technology [SC]
Helen Francis, PSS Rep [HF]
Tim Jones, UTO Rep [TJ]
Sam Nallaperuma, Research Staff Rep [SN]
Daniel Porter, IT Support Manager [DP]
Thomas Sauerwald, Deputy HoD [TS]
Malcolm Scott, IT Infrastructure Specialist [MS]
Mark Cresham, Secretary [MC]

**Attended as a guest*

1. Apologies for absence

Abraham Martin Campillo, Rob Harle, Nic Lane.

2. Approval of the Minutes of the previous meeting

Minutes of the meeting held on 3rd October 2024 were approved.

3. Matters arising

None.

4. Actions from the previous meeting

(i) GPU Upgrades

MS - stated that NL, who was unable to attend this meeting and sends his apologies, will take the lead on this matter. This can be revisited at a future meeting.

ACTION

NL will decide whether to implement a trial for a full course or limit it

to select projects.

(ii) Meeting Room Upgrades

DP - confirmed that funding has been approved for the installation of the UIS hybrid meeting kit in room GS15. Additionally, UIS has provided a quote for the medium room-sized kit at a reduced cost. Funding has also been approved to replace the screen in room SW00 with a specification identical to that of GS15.

(iii) Legacy Services

DP and MS - stated that they will collaborate to create a list of legacy services.

MS - noted that once the list is finalised, it will be valuable to discuss with the committee how the removal of each service might impact the Department.

RM - confirmed that the committee can assist in prioritising which services should be deprecated.

ACTION

DP and MS will collaborate to produce a list of services earmarked for decommissioning. This list will enable discussion, provide support for their decisions, and potentially assist in prioritising the decommissioning process.

(iv) Network Upgrades

MS - stated that the plan remains to use servers as in-house firewalls. While this approach involves significant work, it provides greater flexibility without any substantial cost difference compared to dedicated firewall appliances.

RM - inquired whether UIS could analyse the network structure and replicate the current setup to take over its management.

MS - stated that UIS could manage the office network for general-purpose machines; however, he is still evaluating their capability to manage the network for office machines with more complex requirements. He further clarified that UIS would not be able to manage the data centre network.

RM - requested that MS provide Sarah (sf516) with an update on the expected timeline for the firewalls, enabling her to report back to the School of Technology before the end of February.

MS - confirmed that this is feasible and stated that the order may well have been placed by that time.

RM - confirmed that MS has until the financial year-end on 31st July 2025 to utilise the allocated funds.

ACTION
MS will provide Sarah with an update on the network timeline before the end of February.

(v) Separation of Department Websites
RM - confirmed that, now in possession of the State of the Nation reports, he can discuss with Markus (mgk25) the possibility of the teaching site (CL) becoming self-contained. As a result, it would no longer need to maintain the same 'look and feel' as the main departmental (CST) website.

ACTION
RM will inform Markus of the plan to separate the (cl) website from the (cst) website.

5. Standing items

(i) UIS update
RM - reminded the committee that AM sends his apologies for this meeting. Consequently, updates on relevant developments from UIS, including the door locking system, can be addressed at a future meeting.

(ii) IT team update

Email forwarding

MS - reported that he has been focusing on email forwarding in preparation for UIS decommissioning their system on 6th January. The service "Forward Email" has proven to be a suitable successor, although it may not support a few users with non-standard email addresses.

RM - noted that the costs of supporting non-standard usage, and the number of users requesting such support, must be taken into account when making the decision to do so.

GPU servers

MS - confirmed that EPSRC has provided funding for GPU servers, and he will place an order once the setup on CUFS is complete. He further reported that £38,000 has been spent due to a storage server failure.

TJ - inquired whether the current storage capacity is sufficient to accommodate existing data.

MS - confirmed that the matter is still under consideration. He mentioned that SSDs from the old server might be reused; however, given the previous failure, additional SSDs will likely be required. He further noted that ZFS deduplication contributed to the error, and as a result, it will not be enabled in the new setup.

Purchasing

DP - confirmed that the purchasing workflow has improved, with a wider range of categories now available. This allows users to purchase more items through the same channel.

SharePoint

RM - expressed his support for adopting SharePoint as a tool for managing committee activities.

Door Access

DP - stated that door access matters are more appropriately handled by the Buildings and Environment Committee.

RM - stated that he will monitor plans across the University to determine if the Department could serve as a test case.

SC - added that the Engineering Department has a similar requirement, suggesting that collaboration between the Department and Engineering could be beneficial.

Website migration

DP - stated that UIS is transitioning web servers to the cloud in January and will upgrade from Drupal 7 to Drupal 10 in the summer of 2025. While the same content is expected to be migrated, there is a need to clarify responsibilities for updating the website content, as IT does not offer content update services.

DP - highlighted the need to confirm with UIS whether assisted migration will be available, given that the website has been identified as complex. Additionally, it is essential to understand what factors contribute to this complexity.

SC - confirmed that UIS is beginning with simpler cases and will determine how to assist with more complex cases as the process progresses.

RM - stated that the University manages approximately 2,000 websites and around 2 million web pages. He noted that much of the information is outdated

and not accessible, and the University ranks low in terms of quality of web presence for UK HEIs as a result.

MS - stated that the Departmental Secretary is currently reviewing responsibilities for managing the content on the website.

ACTION
MS will compile a list of independent external websites within the Department.

6. Main business

(i) Cisco to Teams Phone Migration

DP - stated that UIS no longer take onboard new Cisco phones. He mentioned that although UIS has not given any official word on a cut-off date, it is better to be ahead of the curve and come up with a migration plan.

DP – further stated that a two stage plan seems like the best idea, with PSS and volunteers at the first stage, then anything unresolved in the second stage.

HF - inquired whether the Teams application needs to be open for Teams telephony to function.

MS - clarified that while users need to be logged in, the Teams window does not need to be open. Additionally, the Teams app can be used on a mobile phone.

HF - raised a concern about having the Teams app installed on personal phones.

MS - responded that while it would not be mandatory, users would be informed that using the app on their phones would provide a better experience.

DP - further clarified that using Teams on a computer is logically similar to having a desk phone; users can receive calls when they are at their computer but may miss calls when they are not. He added that if users previously chose to forward their desk phone to their mobile, then installing the Teams app on their mobile phone serves a similar purpose.

MS - stated that Estates is replacing redline phones with a mobile solution, which means they will no longer be a concern for the Department.

MS - further stated that there are analogue lines within the Department that need to be addressed, such as those for the Stores back door, the cleaners' phone, the Street phone, and some fax machines.

MS – additionally mentioned that UIS will not support Android-based desk phones for Teams. While these devices do exist, they are considered quirky and not a viable option.

RM - suggested that it would be worthwhile to create a plan for addressing the edge case phones sooner rather than later.

ACTION

DP will produce and circulate a plan for phone decommissioning, ensuring that it addresses edge cases such as the Street phone.

7. Any Other Business

None

8. Date of next meetings

(i) Date: 21st January 2025
Time: 14:00 - 15:00
Location: SW00

Date: 29th April 2025
Time: 14:00 - 15:00
Location: SW00

Date: 17th June 2025
Time: 14:00 - 15:30
Location: SW00

ITSC report: Infrastructure December 2024

Malcolm Scott

Email forwarding

We now have a firm deadline from UIS for replacing our legacy email forwarding: they will be turning off their central mail routing and spam/malware filtering on 6th January 2025.

We are testing a replacement for this facility, outsourced to Forward Email but integrated with local data sources, and plan to switch our email domains across to Forward Email around Christmas.

One issue has arisen with a legacy format of email addresses (prefix-based tagging, whereby users can filter mail by placing an arbitrary tag *before* their username: prefix+username@cl.cam.ac.uk). Very few people are still using this, but at least one has hundreds or thousands of email address variants in use going back several decades. At present Forward Email do not support this. I am in discussion with them to try to find a way to support this, but it is quite likely that we will have to discontinue this addressing scheme at short notice.

Network upgrade

The department has agreed to provide funds to replace all of our network hardware over the next few years (and ongoing on a 10-year cycle). We will start by purchasing new hardware to be put into service as firewalls (taking that function off the core switches/routers “gatwick" and “heathrow”), and then expect to proceed to replacing the core switches/routers themselves.

New GPU servers

Three new GPU servers for ACS projects are now up and running. One is a shared development server with eight low-power NVIDIA L4 GPUs. This is an experiment to see whether low-power GPUs are useful in a development server. We have an alternative with four high-end NVIDIA L40S GPUs on standby ready to take over if this proves problematic as ACS projects progress.

We have just this week received confirmation of EPSRC funding for a shared departmental GPU server for research, equipped with four L40S GPUs, to replace the current shared GPU development server with one A100 GPU.

GPU cluster storage incident, 17 November

On Sunday 17th November during a scheduled overnight storage integrity scan, the storage server “tuffi” which holds user home directories and VM disks for the GPU cluster detected data corruption on several of its SSDs, affecting both mirrored copies of its data.

Whilst investigating the problem with tuffi, it became apparent that data was continuing to become corrupted, including data that had not been written to recently. With no clear cause for the corruption known, and not knowing whether the hardware or the software was at fault, I set about recovering the data to alternative servers. Due to cost constraints we do not have a dedicated spare server for tuffi, nor even a complete backup, so space was made on various alternative servers where we happened to have, or could add, spare SSD capacity and the data

was copied from the live server as far as possible, in combination with partial backups from another server.

Nearly simultaneously, server “hattie” which holds partial backups of tuffi (VM disks only) had also logged a hard drive fault, removing its resilience. This would have been routine, and it is not the first time recently that a disk had failed in hattie, but the coincidental failure reduced our options and slowed down the recovery of tuffi’s data as hattie’s performance was substantially lower whilst it rebuilt its RAID array onto a new disk.

The GPU cluster was heavily disrupted for five days, though for most of that a read-only snapshot of home directories was made available. The current solution is not permanent, with a large quantity of research data (tens of terabytes) occupying storage that was purchased for other uses. We have bought a new server to act as a replacement for tuffi (whose warranty has expired and the service will benefit from newer hardware) at a cost of £38,300 including just enough storage to accommodate the existing data, but no spare space. Additional SSDs may be needed at a further cost, depending on whether tuffi’s disks can safely be reused to provide additional capacity.

We hope that tuffi can remain in use as a backup server, subject to further tests – though we still do not know the cause of the data corruption and must proceed carefully.

Network disruption incident, 6 November

On the afternoon of 6th November, one of our core routers (“heathrow”) suffered a resource exhaustion issue which caused network traffic instability for a couple of hours, particularly as the connections to the University network from that router kept going down briefly.

This is not the first time that we have experienced such an issue. I believe that if the routers briefly have a big burst of work to do for any reason, they can enter a cascade failure state whereby protocols time out, causing more and more work for the router CPU to do to attempt to regain connectivity, which in turn causes other protocols to time out. The routers seem not to recover on their own; on this occasion I had to temporarily configure that router not to handle any routing and to allow its partner (“gatwick”) to take over all routing for long enough that heathrow’s processing backlog could be cleared. I believe this to be a design flaw of the current Cisco hardware and OS.

Moving firewall functionality onto new hardware as described above will mean that the routers’ CPUs have less work to do, which should reduce the frequency of this class of issue until we are able to replace the routers themselves.