# Computing Facilities Manager’s Report

4 August 2000

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Lab and Construction News

The New Mechanical Engineering Lab

Work on this lab was (finally) finished over the break and it has been in operation since the start of session. We now have almost 240 general-access lab computers, approximately 50 more than session 2 last year. Though it is very early in session so far, it looks like the extra capacity has been soaked up by student demand.

Lab usage stats can be found at:
http://www.cse.unsw.edu.au/stat/lablogins/

Printer Boxes

The new thesis lab and the Mechanical Engineering Undercroft are still without printers. We don’t have a nearby room to house them, and need a secure enclosure to keep prying fingers from delicate parts.

An initial prototype is currently being build by the Electrical Engineering Workshop, and should be in place in the Mechanical Engineering undercroft in the next few days.

K17: 107→111D

Another building project that progresses slowly. Discussions with architects progress.

Johns and his team are currently (including Amalan) relocating the the old Visualisation Lab on the ground floor, and will co-habit there till the building work in rm107 is finished.

Amalan moving out of the basement will free up that room for David Pisch and Les to move into.

New Thesis Lab Computers

The K-17 undergrad thesis lab is slowly growing. A number of SGIs from the previous Visualisation Lab have moved into it (the Visi Lab space was desperately needed for other purposes, and the future of the Visi Lab is currently under discussion), several more AlphaStations are moving in (from staff and postgrad desks), and a number new Intel-based computers are currently being ordered/delivered. Within a month or so, we should be up to a full complement of 50 computer in there.

New Help Desk

Another building project that progresses slowly. The help desk is moving into the south-west corner of the Mechanical Engineering undercroft — a better space and a better geographical location than its current temporary location in the Electrical Engineering undercroft. Demolition has finished, building is currently underway. Fitting out should be complete within a month or so.
At this time, CompSoc will be able to move into their promised home in the EE undercroft (possibly swapping with the printer room), giving them a presence nearer the heart of the student population.

New Systems

The Wireless LAN

Chris Petrov has been looking into a wireless LAN to cover the K-17 building, the garden, and the cafeteria.

He is about to make a proposal to the several stake-holders regarding purchases. Implementation should be reasonably straight forward and should fit easily into our environment, though no doubt there will be surprises in store.

The system should provide coverage to the K-17 building, the garden and the cafeteria, for up to 250 wireless connections at up to 11 Mbps.

CSG-supported Linux

This is currently Trent’s main project. It progresses a little slowly because of conflicts between design goals and implementation difficulties.

Trent’s object here is to write machinery which will take a Debian package and turn it into a conform product. With this in place, it should be trivial (i.e., with minimal hand-tuning) to install any Debian package on all of our CSG-managed linux boxes overnight.

Unfortunately, package dependancies are non-trivial and Trent is having to spend more time than originally expected in untangling the web. Similarly, the ad-hoc post-install scripts are proving awkward.

Nevertheless, he (with Neil’s assistance) is making real progress and we are not far off installing linux on servers, people’s desks or lab computers in a fully-supported fashion.

Windows support

Use of StarOffice and the aging Wincenter has proved problematic, particularly with respect to PowerPoint and printing. They mostly work, but for some classes of documents, they simply don’t work.

We have purchased a new server to use as a wincenter replacement. Our preferred option at this stage is to run a number of VMware processes, each of which would provide a virtual Intel-based computer running under linux. This virtual machine would run an appropriate Windows OS, and would a real, local Windows environment.

We will shortly be conducting sizing experiments, and if all goes well should have a ‘modern’ replacement for wincenter by mid-session.

VMware should also provide a useful way of getting Windows onto individual workstations for people who want a Unix box on their desk, but need to run Windows applications moderately often.
A New Mirror

A new mirror box has been purchased and will shortly replace the current school mirror. It should have something close to 200 Gb of mirror space (compared to the current 30 Gb).

Computer Replacement (Operational Policy)

The school currently has a policy of buying well-configured Intel-based systems as its standard computer, and expects them to have a usable life of five years. There is occasionally some discussion about variations on this and about who is responsible for upgrades, maintenance, etc. To aid these discussion, I have collected our current policies and practices.

- The school will either provide standard computer, or will contribute equivalent money towards a configuration of the person’s choice. This is currently $3,000.
- Computers are bought with specifications exceeding currently expected needs, in a configuration expected to make them usable for five years.
- Computers are bought with at least three years warranty (preferably with four or more). Computers bought with research funds should be bought with similar warranty.
- All new staff will get a new computer (or $3,000 towards a computer of their choice).
- All new full-time postgrad research students will get a computer at most three years old (or $1,500 towards a computer of their choice). In practice, I expect that they will generally get a computer at most a year or two old. They may even get a new computer depending on what computers are currently available in the school.
- Any computer over five years old will be replaced on request.
- Any mid-life upgrades will be paid for out of research, group or personal funds.
- People may choose a laptop computer, but for ergonomic reasons, they must also have a ‘full-sized’ monitor (17” CRT or better) and keyboard for when it is being used in its ‘normal’ location.

Specifications (as at July 2000)

Specification details will change over time to reflect changes in technology and cost. The current/new configuration in particular is likely to change frequently. Similar configurations for other platforms (eg, Mac or Alpha) may be substituted with care.

All new computers will have the following specifications (or better):
550 MHz Pentium
256 Mb memory
18 Gb disk
19” monitor + graphics card,
   together capable of 1280 × 1024 × 24 bits @ 75 Hz
floppy
CD-Rom (for ‘personal’ computers)
100 Mbit ethernet

Any computers given to new postgrad students will have the following specifications (or better):

No more than three years old
200 MHz Pentium
128 Mb memory
4 Gb disk
17” monitor + graphics card,
   together capable of 1280 × 1024 × 24 bits @ 75 Hz
floppy
CD-Rom
10 Mbit ethernet

All computers in the school must comply with the following specifications. The school will upgrade or replace any non-compliant computer.

No more than five years old
100 MHz Pentium
64 Mb memory
2 Gb disk
17” monitor + graphics card,
   together capable of 1280 × 1024 × 24 bits @ 75 Hz
floppy
CD-Rom (for ‘personal’ computers)
10 Mbit ethernet

Upgrades and failures

Modem Pool Upgrade

The new modem pool is already facing saturation. At the moment, this is only for peaks of a couple of minutes between 11 pm and midnight on occasional evenings, but this can only be expected to get worse.

We are able to expand the current modem pool reasonably easily, but changes in the price and availability of cable and ADSL connections make those options attractive. At last reckoning, the incremental cost of expanding the modem pool is in the order of $35 per person per month over an expected equipment lifetime of 5 years. The is a proposal currently under discussion to subsidise these people $30–40 per month for acquiring a connection via cable or ADSL. The last prices I have seen are approximately $50 per month for cable (where it is available) and $135 per month for ADSL (when it becomes available in a month or two). Prices for both of these (particularly ADSL) will probably be dropping significantly over the next year.
NFS service failures

Last week one of our primary NFS servers crashed three times in three days. While no data was lost, a significant number of people were without home directories for periods of 1–2.5 hours.

This server, glass, is a linux box and Neil Brown’s development work of the NFS and RAID systems on it (and its protégé cage, not yet online) have provided a fundamental part of current NFS and RAID work in the linux project.

Unfortunately, there were no clear clues as to the cause of the crashes (actually, the system locked up). On Monday this week Neil installed a kernel upgrade (to the latest stable 2.2 kernel). So far things are going well.

PDF support

Support for reading and printing PDF has been problematic for some time. acroread from Adobe performs appallingly slowly on Solaris and Tru64 (née Digital Unix) systems. gv/gs has problems with a significant number of files, and the postscript it generates is occasionally too big for our printers. xpdf has so far been our best option in terms of speed and handling different types of files.

Unfortunately, it has become apparent that xpdf does not handle type3 or TrueType fonts, and both of these can appear in perfectly normal documents (a recent example was generated by distiller from dvips output which, interestingly, gv/gs could read). It does not appear that xpdf will be able to handle these fonts in the near future.

It seems that currently xpdf is still our best general solution, but it does not work on all documents.

Interestingly, although acroread is appalling on Solaris and Tru64 systems, it does perform quite well on much slower linux systems. If we move to linux as our primary teaching platform (maybe next year?), the acroread will probably be a better choice as a standard PDF viewer and printer.

Staff Issues

We have been interviewing for a number of positions recently, and a number of offers have been made, several still to be taken up. Several new staff will be on board within the next few weeks. As people actually arrive, I will announce them to the school. The changes are:

- An offer has been made for the new Mac support person to fit into John’s team. They should be starting in mid-August.
- Trent’s position (he had been promoted into Stephen’s position) has been filled by Tiina, which in turn creates an SS (System Support) vacancy. Tiina continues working part-time SS until the SS team is back up to strength.
- Andrew O’Brian’s SS position has been filled by Tanya Warmenhoven (this is effectively a promotion for her, and creates a vacancy behind her).
• Tanya’s old SS position has been filled by a new person, who is expected to start in mid-August.

• Tiina’s vacant SS position has filled by another new face due to arrive in mid-August.

• The new (fifth) SS position was not filled from the interviewed applicants and we will need to re-advertise again later in session. We will also be talking to a couple of people with the possibility of employing them as casuals, with the expectation that they might apply for the positions when they are re-advertised.

New Service Channels

There are a couple of new channels for requesting service. These are:

admin-support

As part of helping solve the problem of providing appropriate support to the admin staff (the Office and “Bill’s group”), we have set up a mail alias admin-support for reporting problems and requesting service. Initially John Albani and Chris Petrov will be servicing that list.

facilities

As part of helping solve the problem of providing appropriate support for all manner of ‘other’ issues (moving offices, replacing light globes, . . .), we have set up a mail alias facilities for reporting problems and requesting service. These are not necessarily CSG-related issues, but CSG staff will often have a hand in providing a solution. Initially, Bill Atherton, Ric Forster, Yvonne Balakian, David Pisch, John Albani and myself will be looking after issues that are directed to that list.

Future Issues

faure

The server faure is five years old this year and is therefore officially due for replacement. It has been used for cpu-intensive simulations and has been shared with Photovoltaics (who paid for nearly half its cost via a significant upgrade). It is a dual 250MHz ev5 Alpha with 512Mb memory (a very substantial machine when it was bought). We have a budget item for $80,000 to replace it.

I am interested in opinions on what it should be replaced with. Another alpha-based system would give us the fastest straight-line processing speed. Intel-based systems (possibly more than one) would give us best ‘bang for buck’. There is also as argument for getting a SPARC-based box as, unfortunately, there is still software which requires SPARC hardware and we have few SPARC-based systems in CSE (SPARC systems are way way more expensive than Intel
or even Alpha based systems for the type of configuration we are likely to be considering).

I hope to be ordering a replacement system (or systems) within a couple of months and have it all resolved before the end-of-year catastrophe.

**Linux**

For several reasons, I have an interest in using Linux as our primary platform. Indeed, I have some hope that session 1 next year will have Linux in our labs. Clearly one of the major concerns is how difficult it will be to convert our current teaching software to Linux. As soon as Trent has a Linux server available for general access, I will announce it to the school and invite people to check that their software will run on it.

**Issues from Previous FC Meetings**

**Position Descriptions, etc, for John’s Team**

Is underway, still. It has been a very high priority for some time, but the past months have been very busy.

**CSG Performance Evaluation**

This project has also been moving slowly of late. Discussion had got it to the point where it simply needed me to spend a day pulling it all into a presentable set of documents, and there have been very few spare minutes in the last couple of months.

A draft is now available at:


The *Commentary* document is probably the best place to start.

We are having a final review meeting next week, for implementation shortly after. The hope, of course, is that it will be useful without being an administrative burden.