Hardware Standardisation in the Faculty of Natural and Agricultural Sciences. August 2004.

Proposal
That Faculty I.T. develop a common base SOE (Standard Operating Environment) and that from the time it is available, that the schools and faculty agree to purchase only computers which will run that SOE image – that is, base all newly purchased computer on the same mainboard. We would require that the schools agree to use a common Intel mainboard on all new computers purchased. By establishing a common mainboard, we achieve the ability to build an SOE, plus allow a huge variation in the selection of other hardware, and therefore price and performance to suit the individual needs. The choice of items includes items such as processor speed/class, RAM, hard drive, casing, choice of monitor, keyboard and mouse.

Current Position
Currently, computer purchasing is very ad-hoc throughout the faculty. As each individual computer hardware configuration purchased is unique, a different combination of drivers is necessary for each. As a result we have not been able to realise the benefits of a standard operating environment (SOE). These advantages are realised in greater efficiency of computer support, and in economies derived through a common base configuration for all users.

On the other hand, we consistently install the same basic setup manually on all new computers which arrive, install an array of security patches and configure the network and login in the same way on each.

While the benefits of an SOE can be achieved through consistently buying a single model of computer over a period of time, as has proven successful in other faculties and organisations, we recognise that this may not fit with the variation of hardware required in a research environment.

This could be made much more efficient by configuring this standard environment once, and storing the resultant image on a server. This approach allows the installation over a network of the same basic image on every new computer. The result in other faculties has shown that a full configuration has dropped from hours to around 15 minutes per computer. Further, it gives a high quality, highly consistent hardware platform on which to progress the IT platform within the Faculty.

Method
To achieve an SOE, we need the computers purchased to have the same common set of drivers, but we acknowledge that we still need the flexibility to match our diverse range of needs. We also recognise that in the vast majority of cases, there is no need to radically vary the hardware chosen for any given user. Basing all new purchases on the same mainboard fully achieves an SOE in a very flexible environment. Basing the SOE on an established vendor with a predefined and published product life cycle furthers this flexibility and provides a known stable platform, with guaranteed hardware availability on which to base the deployment. These details are published under the Intel Product Roadmap.

When a newer and better technology is released under the Roadmap, we would update our SOE image to suit the new configuration, and release a new mainboard specification to the schools. Additionally, we would continue to support the older specification for the life of the product (within reason) and add additional mainboards from other vendors which also meet the SOE hardware specification (and built on the same driver base).

Finally, we would like a similar situation for laptops, though we acknowledge the need to create an image for a budget and a higher specification version of the image.

Outcomes
This method provides broad scope for purchasing from different vendors, and the freedom to choose all other components to suit the user requirements and budget, but it allows the benefits of platform and hardware standardisation. It also allows us good specific knowledge of the hardware, better fault finding and very fast installation and recovery for users. In critical situations, it provides a good base of potential replacement components – should the need arise. There is a consistent high quality base to the computing infrastructure and a guaranteed stable life expectancy for the platform. All of these things lead to an improvement in security, compatibility and support, and a decrease in the time taken to initially deliver and ultimately support any given computer.

Publishing the current recommended specification and the required mainboard on the internal web pages would provide the schools with the information they require to purchase new machines.

Achieving an SOE would bring us in to line with other faculties and areas on campus, such as Arts, the Library and ACS, all of which use single vendors to achieve the SOE goal. It facilitates a move toward best practice deployment and delivery, and assures transparent integration with University delivered systems and with other users of the network. Finally, it allows seamless remote desktop support to solve a wide range of problems. This is a vast improvement on our current mix of systems, with varying degrees of incompatibility, and which require high point of presence support.
Summary

- Faculty I.T. develop a common base SOE
- All new computers and laptops are purchased with one of the configurations detailed on a computer purchasing web page maintained by computer support
- Other software requirements installed as required, with remote push deployment being the preferred delivery method.
- All machines purchased through a University preferred supplier
- In the case of requirements outside of the allowed specification, a case for justifying such a purchase be made by the School Manager to the Information Services Committee for consideration
- Schools and centres remain responsible for purchasing and for software licensing.
- All purchases which do not comply with the specification or have not met the approval of the Information Services Committee gain no access to the local network, or access only through SNAP. SNAP access is authenticated and charged against a cyllene or student account, and gives no access to printers or servers locally. It would allow user access to the web and mail, but maintain the security of the local network.

Benefits

- Extremely stable, robust and reliable hardware platform
- Unified architecture
- Excellent integration and compatibility with university projects and application delivery
- Economies of scale derived through use of University approved vendors
- Vast array of configurations available to suit budget and performance requirements
- Aligned with best practice deployment techniques
- Boards chosen from Intel, a vendor of the highest quality, and an industry leader in technology.
- Confluence with Intel Hardware Roadmap, giving guaranteed platform stability in the currently proposed form through to at least Q3/2005 (see http://www.intel.com/products/roadmap/desktop_jul_04.jpg)
- Aim of automating setup out of the box from the vendor to allow user to become productive sooner
- Achieves a vastly more manageable, secure and upgradeable platform
- Achieves a single vendor SOE solution in a price competitive multi vendor environment
- Provides much improved document and email compatibility

Efficient delivery of IT support to the user through

1. Excellent specific hardware and installation knowledge
2. Improved fault finding ability
3. Improved speed of delivery
4. Improved service turnover

Disadvantages

- Some loss of flexibility in the choice of a system
- Advertised specials (Dell, Harvey Norman, vendors using cheaper and less reliable hardware) may appear somewhat cheaper than the approved specification

(on close examination, these deals rarely prove to be as good as they appear. See the case study undertaken recently for the PC Procurement Project, comparing an initially inexpensive looking “special” at http://ice.agric.uwa.edu.au/files/SystemComparison.pdf.)
**Proposed Platform – Software**

Windows XP Professional Edition, with security updates  
Office 2003 Professional (Word, Excel, Outlook, Powerpoint, Access) with service packs  
Internet Explorer and Mozilla Firefox browsers, configured to use UWA proxy server  
Eudora (ad sponsored)  
Adobe Acrobat Reader  
Inoculate IT Antivirus  
PDFCreator (open source pdf file creator)  
Endnote  
Genstat (will work as a 30 day demo or as full licensed product by subscription)  
IrfanView (Freeware image viewing software)  
Vicmans Photo Editor (Freeware image manipulation software)  
Real and Quicktime Alternative  
Tera Term Pro with SSH / Putty  
**Services**  
Ghost Client  
Keyserver K2 client *  
Automatic Windows Update via Windows Update Service  
**Support Mechanisms**  
VNC Client  
Terminal Services Client  
Remote Assistance Client  
**Documentation**  
Links to setup instructions  
Links to downloadable forms  
Links to University Policy documentation

**Proposed Platform - Hardware**

**Mainboard:** Must be one of the Intel® Desktop Boards based on the 915G Express Chipset, with onboard NIC and DDR2 Memory, as per [http://indigo.intel.com/mbsg/results.aspx?orgID=16&aryAttrID=124,123,135](http://indigo.intel.com/mbsg/results.aspx?orgID=16&aryAttrID=124,123,135) (excluding D915GEV – no NIC)

Models **D915GEVL, D915GEVLK, D915GUXL, D915GUXLK**

**Processor:** Any LGA775 socketed Intel Processor  
**RAM:** DDR2-533 RAM Modules, either 2 x 256Mb or 2 x 512Mb  
**Hard disk drive:** Any SATA or ATA hard disk drive. Recommended 120Gb SATA  
**Case:** Any compatible ATX case: Recommend ATX Miditower with 300W PSU and front USB connectors

**Plus optional components:** *(Italics recommended)*  
Floppy disk drive  
Wired Keyboard and Mouse / Wireless Keyboard and Mouse  
CRT Monitor / LCD Monitor - from 15” and up.  
DVDROM / DVDROM + CD Writer Combo / DVD Writer *(a CD-ROM is not recommended)*

**Past Specification** *(end of life – This series has been superseded on the Roadmap, but still provides a platform for Celeron Processors)*  
**Mainboard:** Must be one of the Intel® Desktop Boards based on the i865G Chipset, with onboard NIC and DDR2 Memory

Models D865GBFL, D865GBFLK

**Processor:** Any socket 478 Intel Processor  
**RAM:** DDR-400 (PC3200) RAM Modules, either 2 x 256Mb or 2 x 512Mb  
**Hard disk drive:** Any SATA or ATA hard disk drive. Recommended 120Gb SATA  
**Case:** Any compatible ATX case: Recommend ATX Miditower with 300W PSU and front USB connectors

*Keyserver K2 being explored as a means of providing full software auditing and inventory control to facilitate compliance with required management practice.*