1. Job Details
Job Title: Network Manager
Line Manager: School IT Services Manager

2. Job Purpose
Ensure that the School’s network is resilient, fully functional and secure at all times (24/7).

3. Main Responsibilities
1. Technical leadership for the design installation, configuration and operation of a self-healing network to provide high reliability, bandwidth and low latency. 30%
2. To oversee the interconnection between Internet, Edlan and local services (incl wireless access) and client groups. To design and implement the necessary traffic management measures, segregation (fire-walling) and security. 30%
3. To identify or develop tools to provide monitoring, alerts and management of the network, eg intruder detection. 30%

4. Planning and Organising
Postholder required to be self-organising wrt to job identification, prioritisation and planning in consultation with colleagues.

5. Problem Solving
A high level of ability in analysis and support skills appropriate to computer systems problems, with technical leadership to other members of the team.

Example: In a recent Edlan incident which caused mayhem over a weekend, the postholder was the first to identify the cause as rogue equipment (which it later transpired had been illegally connected to Edlan by a postgraduate in another college on another campus). However, as this was out with School control, instead the postholder opted to restore the best level of service then possible by reconfiguring the School network gateways to disregard the network re-configuration messages being broadcast across Edlan by the rogue device.

6. Decision Making
The maintenance and development of new services requires decisions in respect of changes which will affect all users of these services. For example when to apply patches, when to introduce a complete change to the core network service, eg its security architecture. There is an expectation to take decisions unaided and make recommendations with a view to improving existing services and to implement these successfully after appropriate consultation with other service providers.

Example: When purchasing new hardware, the specifications of the devices must be considered very carefully to ensure standards based interoperability within the existing infrastructure, and that the equipment can support future developments in data communications e.g. wireless services and the University’s move to voice over IP (VoIP) as its voice call infrastructure. Ensuring standards across the board allows the implementation of existing open source management tools and in house developed software utilities to automate as much as possible, the performance measurement and overall management of the network. This enables a set of metrics to be established in judging future performance of the network and gives a base configuration to work from, to aid in device configuration management.

7. Key Contacts/Relationships
Internally, customers range from students to head of school and externally including visiting academics and senior industrialists as well as number of affiliated organisations.

Technical support between other IT staff in the University in particular EUCS Network Services Division’s operations and development teams and Informatics’s network manager. Technical support from manufacturers’ helpdesks.
Example: Conference call to Cisco’s development engineers in California (in conjunction with EUCS NSD-development team) when the School experienced a difficulties with a new product - subsequently the manufacturer significantly revised the methodology used by the packet filter module.

8. Knowledge, Skills and Experience Needed for the Job

The job is of a very technical nature normally requiring graduate level education, a high level of hands on skill and a minimum of five years experience in network architecture and management of high speed data networks. The ability to solve problems in a timely and effective manner is essential along with technical documentation skills.

9. Dimensions

The School has 1200 undergraduate and taught MSc students, 400 research students and staff, altogether 2100 registered user accounts.

The School operates three managed and maintained platforms:

a. Solaris: 206 installations (incl 74 seat partionable teaching lab, 42 servers),

b. Linux: 548* installations managed via LCFG; 15 turnkey 64-bit servers.

c. Windows XP: 400 installations (265* "SEE" managed, 145* "AD" managed in five labs with UG compatibility).

[*]390 are dual boot Linux/Windows (technology developed in SEE and now exported to DST for the Microlabs)

d. In addition we provide network services (filestore, printing etc) to a further 40 personally managed machines (mainly user laptops) and a similar number of lab-experiment turnkey systems throughout the School.

Filestore: 42 Solaris servers, 14 Linux NAS boxes (cross replicating) (>100TB total). 90 network printer queues (60 printers). Web sites for 33 registered domains (hosted on 3 servers), mail servers for 16 domains (3 servers).

The School has designed, manages and operates a fibre network linking 13 buildings spread over the KB site together with a cat5E distribution to 2800 circuits in offices and labs. The School "backbone" centres around two Cisco routers connected directly to Edlan and Informatics respectively, 32 network switches (up to 168 ports each) with hot-spare inter-links. 25 WAPs provide wireless coverage throughout for mobile users and visitors. In three buildings, the data network also carry phone circuits (130 in total) for which connections are also managed by the IT team.

Applications: c240 Solaris, c30 Linux, c40 MS-Windows (25 MSIs for teaching labs), 20 licence servers of various types. Only applications that run on all three platforms are eligible to be classed as core applications within the School. There are 9 of these including basic maths and officetools: Matlab, Maple and OpenOffice.

The user help-desk uses the EUCS CMS with calls filtered by the college support team, and runs at between 150 and 200 open calls for the School team to resolve. All members of the team take a half-day duty turn, assigning jobs to the appropriate team member. The School’s IT help web site contains 204 pages (and about 2500 links).

10. Job Context

The post requires a wide ranging knowledge across a number of core services. The job is technically complex and challenging, as the technology, and hence the service requirements of our researchers in particular, are constantly evolving before any support infrastructure is available from the University. Issues arise often that have not been encountered before and the IT team is always at the leading edge, frequently advising EUCS on such matters.

In order to ensure continuity of service, especially for taught laboratories for which rescheduling is virtually impossible, we have to develop back up for those central services that we normally rely on. Where practical, these are hot-swap, but inevitably many require on-the-fly manual reconfiguration.

11. Verification

I agree that this job description conveys an accurate description of the job.

Job Title   Name  signature  date