

DRAFT

Project Framework Plan

Jo Blishen

1 February 1996

1 Introduction

General blurb about reasons for project framework.

Disclaimer: this document isn't part of Departmental policy or strategy, nor does it affect decisions made by the Departmental Committee.

2 Terminology

A *project* is any task that requires more than 4 person-weeks of effort.

3 Definition of tasks/service to be provided

The aim is to provide a project planning framework for efficiently carrying out projects and a document explaining the procedures that implement this framework.

The framework should create mechanisms for:

- activating a new project
- defining and documenting the scope of a project
- defining and documenting the resource requirements of a project
- assigning suitable priority to a project and hence allocating adequate resources to it
- defining reporting procedures for the active project
- monitoring progress of the active project

4 Resources required

- *Define separate roles within the project if necessary and give resource requirements for each role separately.*

- *How much effort will be required and over what time period (for specific deadlines, see the next section)? Don't forget to include the long term maintenance resource.*
- *What skills will be needed?*
- *What equipment/space will be needed?*

5 Work plan

Initially the project framework will be piloted with syssies. The tasks within the pilot are:

- Create the project framework:
 - Create a mechanism for activating new projects - does this need to be formal?
 - Create a pro-forma for plans (with guidelines for assistance) and make this available to project sponsors
 - Create a mechanism for forming project groups
 - Create a mechanism for deciding priorities amongst projects and allocating resources to projects according to priorities (via Planning and Resources Committee)
 - Create a mechanism for publicising projects (publishing plans and resource allocations once a project is approved)
 - Create a mechanism for setting up reporting and monitoring procedures
- Draft and distribute a document explaining the procedure that implements the above framework
- Set up project monitoring and reporting procedures for this project

6 Timescales and Milestones

Milestone 1: distribute a draft document explaining how projects work and the procedures for creating and implementing projects to the Department.

7 Monitoring and Reporting Procedures

Suggestions:
Report to Mike - frequency?
Report to Planning & Resources?

8 Known problems and Further work

A Rationale

Extended blurb about reasons for project framework.

CO/CSO Work Profile

Jo Blishen

22 February 1996

The following is a list of the work that the individual syssies (12 full-time COs, 2 part-time COs, 2 CSOs) expect to carry out over the next 6 months.

1 Project-based work

The following work is mainly project-based — it occupies a fixed amount of time.

Teaching

CS3 Individual Project support (ajs)

Linux installation; support during the exercise. **4 weeks.**

CS3 System design support (ajs)

10 weeks.

System Networking

DNS (gdmr)

Alpha and beta testing of bind. **2 weeks.**

lcfg tidy out (gdmr)

1 week.

Printing (jst)

Short-term: Linux and SGI printing; tidy up main printing and fix outstanding bugs (new HP laserjets, AI cross fertilisation, CA1). **6 weeks.**

Long term: Review of plp and other options. Liaise with other departments. **4 weeks.**

Applications

Databases (rs)

Finishing implementation of CS3 database, tidying 4th dimension client-server installation and preparing exam mark layouts (CL1, CS3). **6 weeks** (at half time).

New course database - new technology and implementation. **5 months** (at half time).

Emacs (cc)

Install 19.14 and see if it can be the default. **2 weeks**.

GUI/X (gdmr)

Evaluate migration to Openwindows libraries and Common Desktop Environment (with 2.5). **5 weeks**.

Fresco (Interviews replacement). **2 weeks**.

LaTeX (jtb/iro)

Unleash LaTeX2e on unsuspecting public (from morna):

- **jtb: 4 weeks**.
- **iro: 4 weeks**.

ML (jst)

Install new version of njml, tidy emacs interface, sort out library version incompatibilities. **4 weeks**.

News (dwb)

Review of running our own service. **1 week**.

VLSI (cc)

(Handed over from ddr.) New version of Cadence **2 weeks**. Hspice needs some maintenance (tiny).

Web (jtb)

New homepage, browsers, editors, convertors. **2 weeks**.

System Hardware

Equipment spending (ajs,gdmr,paul,morna)

Project to plan the summer equipment spending.

- ajs - 3 weeks
- gdmr - 1 week

LFCS equipment planning (paul). 2-3 weeks.

Macs (jst,paul,cc,lmb)

- jst: Upgrade CAP; fix Mac printing (.ppd files); control file checker for revrdist. 3 weeks.
- bf paul: Tracking/updating new versions of software; systems support (to cc); licenses, purchasing, strategy (to cc/lmb). 4 months.
- cc: Installing/upgrading machines; arkle maintenance, user support; systems support, licenses, purchasing, strategy (from paul). Training and lmb's technical support. 16 weeks.
- lmb: Take over licenses, purchasing (from paul); installing machines; training; IP numbering. 4 weeks.

Mid-year tuning (gdmr)

2 days.

PCs (ajs)

WindowsNT investigation (support Labs of pcs?, SQL server). 8 weeks

Rathlin (gdmr)

Upgrade to hardware and 2.5. 2 weeks.

Summer equipment rebuild (dwb,rwt)

- dwb: summer equipment rebuild 2 weeks.
- rwt: summer equipment rebuild (includes LFCS) 4 weeks.

Solaris 2.5 (dwb,rwt,gdmr,paul)

- paul - 2 weeks
- gdmr: amd - 2 weeks
- dwb: project plus upgrades (including mail machine) 12 weeks
- rwt project plus upgrades 4 weeks.

Admin

Project planning (jtb)

Set up project planning framework, draft document, discuss with members of department. **3 months.**

Syssies' Newsletter (cc)

2 weeks.

2 On-going support

Teaching

DCS teaching systems support (dwb)

1/2 day per week.

Tutorials and lectures

- **paul:** cs4 year/Msc project supervision; lectures
- **iro:** cs1 tutorials
- **gdmr:** cs4/Msc project supervision; system lecture
- **dwb:** tutoring **1/2 day per week**

User support

Faults and support (jenny,lmb,cc)

Faults: analysing faults and fixing them (c. 30% faults)

Support: managing quotas, new accounts, moving accounts, ftp, restoring from backups, general queries, entacards and PINs, copier accounts, package management, QI maintenance.

- **jenny:** **4 days per week**
- **lmb:** **2 days per week**
- **cc:** **1 day per week**

LFCS staff support (paul)

Networking, mail, applications. **1/4 day per week.**

Mail (jenny,lmb)

- **jenny:** Postie, mail system maintenance, mailing lists. **1/2 day per week.**
- **lmb:** Postie, mail system maintenance, mailing lists. **1/2 day per week.**

System Networking

Printing (jst)

1/2 day per week

YP distribution technology

Maintenance and tidying. 2 weeks per year.

System Hardware

Staff machine and LFCS systems support (rwt)

- **Staff machine support 2 days per week.**
- **LFCS systems support 1 day per week.**

Annex (ajs)

Consoles, RS232 access, modems, ppp) 1 week per year.

Macs (jst,lmb)

- **jst: 1/2 day per week.**
- **lmb: maintaining licenses, backups; installing machines; training; user support. 2 days per week**

Mail system (dwb)

System maintenance (from morna) 1 day per month.

SGI support (ajs/rwt)

- **ajs: 3 weeks per year.**

Applications

Databases (rs)

Course database maintenance and Oracle support. 1/2 day per week.

LaTeX (jtb?)

Tidy up installation, fix bugs and maintenance **2 days per week.**

ML (jst)

1/4 day per week.

News (dwb)

1/2 day per week.

Videoconferencing (MBONE) (ajs)

1 week per year.

Web (rs,jtb)

Answering queries, maintaining home page and Web directory. **1/2 day per week.**

Admin

Purchasing and maintenance contracts (jhb)

Budgetting. Equipment ordering and maintenance contracts (to lmb). **1 day/week.**

LFCS equipment ordering (morna)?

Package maintenance (all)

Package management (jtb)

1 day per month

Various packages (all)

(Almost) everyone mentioned packages they maintain. Specifically:

- **ajs: perl (1 week per year)**
- **ajs: Sun compiler (1 week per year)**
- **ajs: gcc/g++ (1 week per year)**
- **gdmr: Autocad (1 week per year)**
- **gdmr: a huge list of things**
- **paul: lcfg, lfu, other packages (1/2 day per week)**
- **rwt: ObjectStore, graphics, ghostscript**
- **cc: Netscape (1 week per year)**

- **iro**: Amanda maintenance (1 day per week)

Misc

Development of Systems (paul, gdmr)

- **gdmr**: UNIX networking and patches 2 days/week
- **paul**: 1 day per week

Syssies meetings

ajs, arch, cc, ddr, dwb, gdmr, iro, jenny, jhb, jst, jtb, lmb, morna, paul, rs, rwt 1/4 day per fortnight.

Technical Strategy (ajs,gdmr,paul)

(includes tracking technical developments)

- **ajs** - 1 day per week
- **gdmr** - 1 day per week
- **paul** - 1 day per week

3 External work

- **jhb** Edinas, Sellic, etc. 4 days per week

4 Suggested new work

These new projects were suggested, but no resource has been allocated yet.

Documentation

Technotes, Web pages need overhaul.

Emacs

Look at emacsclient and jcb's version.

Environment

Needs tidying.

Integration with other departments and EUCS

lcfg - new version

Custom editor, inheritance of resources, validation, new distribution protocol, new storage of maps.

Network Fax

Network monitoring

Security

Small Mac ML

Sysadmin CS4 module

Web

Web development - reconfiguration of servers, new server software, html editors, browsers.

| | ajs | arch | cc | ddr | dwb | gdmr | iro | jenny | jhb | jst | jtb | lmb | morna | paul | rs | rwt | Total |
|--------------------------|-----|------|----|-----|-----|------|-----|-------|-----|-----|-----|-----|-------|------|----|-----|-------|
| Teaching | | | | | | | | | | | | | | | | | |
| CS3 Individual project | 4 | | | | | | | | | | | | | | | | 4 |
| CS3 System design | 10 | | | | | | | | | | | | | | | | 10 |
| Total Teaching | 14 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 14 |
| System Networking | | | | | | | | | | | | | | | | | |
| DNS | | | | | | | 2 | | | | | | | | | | 2 |
| lcfg tidy | | | | | | | 1 | | | | | | | | | | 1 |
| Printing | | | | | | | 10 | | | | | | | | | | 10 |
| Total System Networking | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 13 |
| Applications | | | | | | | | | | | | | | | | | |
| Databases | | | | | | | | | | | | | | | | 26 | 26 |
| Emacs | | | | | | | | | | | | | | | | 2 | 2 |
| GUI/X | | | | | | | 7 | | | | | | | | | | 7 |
| LaTeX | | | | | | | | 4 | | | 4 | | | | | | 8 |
| ML | | | | | | | | | 4 | | | | | | | | 4 |
| News | | | | | | | 1 | | | | | | | | | | 1 |
| VLSI | | | | 2 | | | | | | | | | | | | | 2 |
| Web | | | | | | | | | | | 2 | | | | | | 2 |
| Total Applications | 0 | 0 | 2 | 0 | 1 | 7 | 4 | 4 | 0 | 0 | 4 | 6 | 0 | 0 | 0 | 28 | 52 |
| System Hardware | | | | | | | | | | | | | | | | | |
| Equipment spend plan | 3 | | | | | | 1 | | | | | | | 2.5 | | | 6.5 |
| Macs | | | 16 | | | | | | | 3 | | 4 | | 16 | | | 39 |
| Mid-year tuning | | | | | | | 0.5 | | | | | | | | | | 0.5 |
| PCs | 8 | | | | | | | | | | | | | | | | 8 |
| Rathlin | | | | | | | 2 | | | | | | | | | | 2 |
| Summer equipment rebuild | | | | 2 | | | | | | | | | | | | | 4 |
| Solaris 2.5 | | | | 12 | | | 2 | | | | | | | 2 | | | 4 |
| Total System Hardware | 11 | 0 | 16 | 0 | 14 | 5.5 | 0 | 0 | 0 | 3 | 0 | 4 | 4 | 20.5 | 0 | 8 | 82 |
| Admin | | | | | | | | | | | | | | | | | |
| Project planning | | | | | | | | | | | 12 | | | | | | 12 |
| Syssties' newsletter | | | 2 | | | | | | | | | | | | | | 2 |
| Total Admin | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 14 |

| | ajs | arch | cc | ddr | dwb | gdmr | iro | jenny | jhb | jst | jtb | lmb | morna | paul | rs | rwt | Total |
|------------------------|-----|------|----|-----|-----|------|-----|-------|-----|-----|-----|-----|-------|------|----|-----|-------|
| Maintenance contracts | | | | | | | | | | | | 10% | | | | | 10% |
| Total Admin | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 10% | 0% | 0% | 0% | 0% | 30% |
| Packages | | | | | | | | | | | | | | | | | |
| Package management | | | | | | | | | | | 5% | | | | | | 5% |
| Various | | | | | | | | | | | | | | | | | 0% |
| Total Packages | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 5% | 0% | 0% | 0% | 0% | 0% | 5% |
| Misc | | | | | | | | | | | | | | | | | |
| Development of systems | | | | | | 40% | | | | | | | | 20% | | | 60% |
| Syssies meetings | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 32% |
| Technical strategy | 20% | | | | | 20% | | | | | | | | 20% | | | 60% |
| Total Misc | 22% | 2% | 2% | 2% | 2% | 62% | 2% | 2% | 2% | 2% | 2% | 2% | 2% | 42% | 2% | 2% | 152% |

| | ajs | arch | cc | ddr | dwb | gdmr | iro | jenny | jhb | jst | jtb | lmb | morna | paul | rs | rwt | Total |
|----------------------------|-----|------|-----|-----|-----|------|-----|-------|-----|-----|-----|-----|-------|------|-----|-----|-------|
| Teaching | | | | | | | | | | | | | | | | | |
| DCS teaching systems | | | | | 10% | | | | | | | | | | | | 10% |
| Student supervision | | | | | | | | | | | | | | | | | 0% |
| Tutorials and lectures | | | | | 10% | | | | | | | | | | | | 10% |
| Total Teaching | 0% | 0% | 0% | 0% | 20% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 20% |
| User support | | | | | | | | | | | | | | | | | |
| Faults and Support | | | 20% | | | | | 80% | | | | 40% | | | | | 140% |
| LFCS staff | | | | | | | | 10% | | | | 10% | | 5% | | | 5% |
| Mail | | | | | | | | | | | | | | | | | 20% |
| Total User support | 0% | 0% | 20% | 0% | 0% | 0% | 0% | 90% | 0% | 0% | 0% | 50% | 0% | 5% | 0% | 0% | 165% |
| System Networking | | | | | | | | | | | | | | | | | |
| YP distribution technology | 4% | | | | | | | | | | | | | | | | 4% |
| Printing | | | | | | | | | 10% | | | | | | | | 10% |
| Total System Networking | 4% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 10% | 10% | 0% | 0% | 0% | 0% | 0% | 0% | 14% |
| System Hardware | | | | | | | | | | | | | | | | | |
| Staff machines | | | | | | | | | | | | | | | | 40% | 40% |
| LFCS systems | | | | | | | | | | | | | | | | 20% | 20% |
| Annex | 4% | | | | | | | | | | | | | | | | 4% |
| Macs | | | | | | | | | 10% | | | 40% | | | | | 50% |
| Mail system | | | | | | | | | | | | | | | | | 5% |
| SGI | 5% | | | | 5% | | | | | | | | | | | | 5% |
| Total System Hardware | 9% | 0% | 0% | 0% | 5% | 0% | 0% | 0% | 0% | 10% | 0% | 40% | 0% | 0% | 0% | 60% | 124% |
| Applications | | | | | | | | | | | | | | | | | |
| Databases | | | | | | | | | | | | | | | 10% | | 10% |
| LaTeX | | | | | | | | | | | 40% | | | | | | 40% |
| ML | | | | | | | | | 5% | | | | | | | | 5% |
| News | | | | | 10% | | | | | | | | | | | | 10% |
| Videoconferencing | 2% | | | | | | | | | | | | | | | | 2% |
| Web | | | | | | | | | | | 5% | | | | | | 10% |
| Total Applications | 2% | 0% | 0% | 0% | 10% | 0% | 0% | 0% | 5% | 5% | 45% | 0% | 0% | 0% | 15% | 0% | 77% |
| Admin | | | | | | | | | | | | | | | | | |
| DCS purchasing | | | | | | | | | 20% | | | | | | | | 20% |
| LFCS purchasing | | | | | | | | | | | | | | | | | 0% |

Development of Computing Facilities for the Computer Science Department

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1 Introduction

Over the next few years, we expect the computing facilities within the department to evolve in a number of directions. This paper attempts to predict some of the likely trends and present them for discussion. It also identifies areas which may require significant new resources.

2 Summary

Some of the trends outlined in the following sections are mainly concerned with changes in technology and the way in which the infrastructure is provided. We do not expect these developments to substantially change the user's view of the core services.

However, some of the developments could significantly affect the facilities and support directly available to end users. The following points probably represent the key issues:

- In the past, the department has concentrated largely on one "standard" system, but it seems likely that more diversity will be inevitable in the future. This diversity may come from both additional Unix platforms as well as single-user machines running completely different operating systems, which may well lead to a less tightly integrated system.
- Clearly, the high level of detailed support provided in the past for a single system can not be extended across a much wider range of platforms. Many other organizations address this problem by devolving much of the support work to end-users, but this can be very inefficient and requires significant additional effort from the users themselves.

- There is no defined policy and no mechanism for enforcing the security of the current systems. This means that the practical level of security is often considerably less than users might expect. We believe that this is no longer acceptable for many applications, and a clear policy needs to be developed which provides an appropriate balance between ease of use, cost, and level of security.
- Development of new directions may require significant resources and some mechanism is needed to identify existing areas from which these resources can be transferred.

3 Single-user Machines

3.1 Trends

We anticipate an increasing proportion of single-user machines such as Macintoshes and/or PCs. Initially, this will probably be mainly for personal use and specialized teaching applications, but later, it may also include student laboratories. This is largely because:

- Such systems often provide better facilities for the administrative tasks, including document processing and mail, which are the major applications for many users.
- The University administration and central facilities are moving towards this type of machine, as are many other organizations, and compatibility with these will be important.
- Portable machines are becoming increasingly popular as the power and connectivity improves.
- The number of students and staff owning machines at home is likely to increase and compatibility with these is also important.
- Single-user are more cost-effective for many applications.

Although the development environments on these machines are often more attractive than the equivalent Unix environments, only PCs running NT

(or Linux) would currently be considered suitable for general student programming until the other operating system(s) develop more robust memory protection. However, we would not be happy to commit, at this stage, to developing one platform (Macintosh or PC) at the expense of the other, since both have distinct advantages and disadvantages; at present, Macintoshes appear to be establishing themselves in the department as portable and administrative machines, while PC's are being used more for programming and student work.

3.2 Configuration and Maintenance Problems

Unix is well-suited to large-scale remote management and several man years of effort within the department have been devoted to producing a system which is very efficient to manage. Managing single-user machines is extremely difficult and usually very inefficient¹. It is inconceivable that we could manage significant numbers of single-user machines with the existing man-power unless new mechanisms are developed to improve efficiency in a similar way to the existing systems.

Many organizations provide very little coordinated management of single-user machines leaving responsibility with the end-user. However, this tends to be extremely inefficient and an appropriate balance needs to be found between user- and central responsibility.

Some effort will also be required to integrate these machines into the infrastructure and to develop appropriate ways of working; for example, user files held on a local personal machine will no longer be available to other network users.

4 Workstations and Compute Servers

4.1 A Wider Range of Platforms

Although single-user machines might be appropriate for an increasing number of users, there will still be a heavy demand for workstation-class machines. These will be necessary for users with heavy computing requirements or specialist applications, such as graphics. In many cases, Suns will be perfectly suitable, but they will not be the ideal machines for all applications and we would like to be able to provide a wider range of Unix workstations for specialist needs. This might lead

¹The paper <http://www.dcs.ed.ac.uk/home/paul/Internal/Mac.Support.dvi> describes some of the problems involved in the management of significant numbers of macintosh machines

to smaller numbers of more highly configured machines, and it is not clear whether it will be appropriate to site these machines in individual offices (for example, the existing Silicon Graphics machine).

A number of the configuration and support problems associated with single-user machines are also relevant to diverse Unix platforms and it is likely that these could only be supported by devolving some support functions in a similar way.

4.2 X Terminals

X terminals have provided cost effective desktop facilities in the past, but we expect their numbers to reduce in the future. There are a number of reasons for this, including:

- Workstations (or single-user machines) are more flexible and likely to adapt to new requirements (for example, multi-media and video-conferencing).
- Some security problems are impossible to solve adequately with X terminals.
- The unpredictable loading of the network and servers is not always acceptable.

It is possible that X terminals could be used to provide supplementary public facilities for news and mail processing freeing more powerful machines for general computing.

4.3 EUCS

Previously, the facilities offered by the central Computing Services have been rather different from those required locally within the department. However, they are now very similar and it should be possible to take more advantage of this. More student access from central laboratories (of single-user machines or workstations), and more use of central compute power are two possibilities.

5 Infrastructure Services

5.1 Core services

The current departmental infrastructure provides common facilities such as Mail, News and Internet services based on distributed Sun servers. We believe that Unix-based Suns will continue to be the best platform for this type of application and we do not envisage any major changes in the way in

which the present services are implemented; Sun Solaris is comparatively easy to manage, and it is frequently the first platform to which new software is ported.

However, some infrastructure services will need to adapt to the requirements of more single-user machines; for example, remote backups, mail, and file sharing. There is also a possibility that requirements may appear for completely new applications which will have a significant effect on the way in which the infrastructure is provided. For example, development of video-conferencing would have significant implications for the technology and topology of our networks.

5.2 EUCS

Some of the services which we offer at a department level are also becoming sufficiently commonplace that we might want to consider transferring the responsibility to the Computing Services. This would reduce the load on our equipment and support staff. Initially, News is the most likely candidate, but mail and other services could also be considered in the future.

6 Remote Access

We anticipate an increase in the amount of remote access to departmental computing facilities. This will come from portables and home machines, as well as increased student use of central computing laboratories. This implies a change in the balance between servers and workstations as well as possible improvements to the network facilities. It may also involve investigation of new technologies such as ISDN and cable networks.

Remote access also has significant security implications and remote-users may not be able to expect the same access rights, or even operating procedures, as local users.

7 Software

Previously, much of the software used within the department has been built from source code and adapted as necessary to fit the local requirements. In many (but not all) cases, it is now possible to move towards more standard software which would be more compatible with other sites and require less maintenance. However, especially with single-user machines, there is a trend away from supplying source code and towards binary-only distribu-

tions. This means that the software might not be so well integrated as the current systems and additional work may be generated in some cases to overcome these problems. Software costs and management of software licensing will also need much more attention than in the past.

8 Security

8.1 Policy

An "acceptable" level of security represents a trade-off between convenience, cost and level of security. It is impossible to implement a security solution without a clear statement of policy which defines the relative importance of these factors (in practice, different levels of security might be appropriate for different areas of departmental activity).

At present, the department has no security policy and, as a consequence, users cannot be sure what level of security is actually being provided for their data. A clear policy is required, together with some mechanism for enforcing that policy, particularly where this depends on manual procedures, or management of systems that has been delegated to end users.

Current security arrangements are appropriate for the original departmental network used for academic purposes and connected to a comparatively small number of similar systems. This is unlikely to remain acceptable in the future for a large, highly distributed system which is central to the running of the department.

8.2 Implementation

Implementation of a security solution across a distributed heterogeneous networks is extremely difficult and is not adequately addressed by system vendors². However, a complete solution must cover both technical issues and associated manual procedures. Some possible examples include:

- "Firewalls" between groups of machines to provide clusters of machines which are more secure than other machines.
- Provision of data encryption software (for example, PGP).

²The papers <http://www.dcs.ed.ac.uk/home/paul/Internal/Mac.Security.dvi> and [/home/gdmr/Progress/docs/sys-security.dvi](http://www.dcs.ed.ac.uk/home/gdmr/Progress/docs/sys-security.dvi) describe some of the issues in more detail

- Privacy enhanced mail.
- Documentation and training in security issues.
- Authentication schemes such as Kerberos.
- Manual procedures for handling paper records.
- One-time passwords.
- Smart cards.

DRAFT

Project Framework Plan

Jo Blishen

13 February 1996

1 Introduction

The Department has agreed there should be a shift towards an activity (or project) based approach. Projects will provide a transparent mechanism for prioritising and monitoring activities. This document describes the steps required for implementing projects

Disclaimer: this document isn't part of Departmental policy or strategy, nor does it affect decisions made by the Departmental Committee.

2 Terminology

A *project* is any task that requires more than 4 person-weeks of effort.

3 Definition of tasks/service to be provided

The aim is to provide a project planning framework for efficiently carrying out projects and a document explaining the procedures that implement this framework.

The framework should create mechanisms for:

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4 Resources required

- *Define separate roles within the project if necessary and give resource requirements for each role separately.*
- *How much effort will be required and over what time period (for specific deadlines, see the next section)? Don't forget to include the long term maintenance resource.*
- *What skills will be needed?*
- *What equipment/space will be needed?*

5 Work plan

Initially the project framework will be piloted with syssiis. The tasks within the pilot are:

- Create the project framework:
 - Create a mechanism for activating new projects - does this need to be formal?
 - Create a pro-forma for plans (with guidelines for assistance) and make this available to project sponsors
 - Create a mechanism for forming project groups
 - Create a mechanism for deciding priorities amongst projects and allocating resources to projects according to priorities (via Planning and Resources Committee)
 - Create a mechanism for publicising projects (publishing plans and resource allocations once a project is approved)
 - Create a mechanism for setting up reporting and monitoring procedures
- Draft and distribute a document explaining the procedure that implements the above framework
- Set up project monitoring and reporting procedures for this project

6 Timescales and Milestones

Milestone 1: distribute a draft document explaining how projects work and the procedures for creating and implementing projects to the Department.

Milestone 2: revise and publish this document following consultation with members of the Department.

Milestone 3: implement mechanisms as described in the above document.

DCS Service User View — DRAFT

John Butler

March 11, 1996

Aims of this Document

To provide a statement of the service run in the Department of Computer Science as it will be seen by users. This document is intended as an overview of the service for new users and as one of the maintained set of service description documents.

General overview of the service

The Computer Science Department provides its own service to support teaching, research and administration within the Department. The service aims to provide state-of-the art facilities to its users. A rich variety of software is available at Edinburgh and visitors from well-appointed CS laboratories around the world find the environment very familiar. Additional material is constantly being purchased or retrieved from the Internet.

People

The departmental computing infrastructure is maintained by a team of some 12 academic-related Computing Officers and two Computing Support Officers. Access to the team is informal as needed or in a more structured fashion through the 'faults' and 'support' mail addresses (for fault reports and general assistance respectively) or through the 'front desk' maintained in room 241x.

'faults'

The faults mail system is supported by an application which logs faults and generates an automatic reply once the fault report is **read**. Faults remain on the system and support staff are nagged till they are cleared. Faults is permanently manned in office hours and a message to faults should generate attention and a response within an hour or so, depending on the press of other calls.

DCS Service Executive Summary — DRAFT

John Butler

March 11, 1996

1 Aims of this Document

To provide a statement of the philosophy which underlies the service run in the Department of Computer Science

2 Overview of the service

The Computer Science Department provides its own service to support teaching, research and administration within the Department. The service provides state-of-the art facilities to its users.

Computer Science subject-related computing traditionally takes place on Unix machines for which a rich variety of applications has been acquired or developed.

General office IT requires more conventional applications and is increasingly being handled on Macs or PCs.

Engineering-style applications and project work takes place on all available platforms but principally PCs.

All machines and services are attached to and accessed via the Department's Ethernets.

3 Philosophy

3.1 Flexibility

The service operates in a very volatile environment. The rate of change of technology and of user habit and expectation is rapid and has to be catered for. Though any service has to be planned in advance it is recognised that planning horizons are short and that a key design aim of the service must be flexibility to change direction as demand dictates without wrecking the underlying strategy.

3.2 Reliability

The service must achieve a high degree of reliability as it underpins virtually all other departmental business and activity.

3.3 Economy

The service must at all times be striving to become easier (i.e. cheaper) to manage. A look at any measure of size and complexity over the years (figure 1) shows that if effort required becomes a function of network size then it will quickly become unmanageable. A further design aim is to provide sophisticated systems management tools to allow many systems management tasks to be delegated and use high-quality expertise to the best effect.

3.4 Anticipation

The service must at all times look ahead and attempt to anticipate the requirements of its users

3.5 General Excellence

The department should have the aim of remaining a centre of excellence in the development and maintenance of advanced Unix networks. As well as having an impressive pure academic record, this department also has a world class service. This position must be maintained.

Quality of service

3.6 Suitability and Accountability

The service has to meet the requirements of its users which means there must be a statement of requirements by the users and some form of service evaluation and accountability on behalf of the service providers. This is achieved through management and committees and is described in the associated paper "DCS Service Document"

3.7 Reliability

Reliability is achieved by the following:

All critical hardware is as uniform as possible and of a type which is replaceable immediately by existing non-critical equipment or a hot spare.

Binaries are replicated wherever possible and arranged such that replacements can be switched in by a simple reconfiguration.

Software is installed in such a way that it can be immediately and easily re-instated. Wherever possible, it should simply be necessary to start the software up on another similar machine.

Training, communication, documentation and scheduling of systems staff leave is sufficient that there is always someone available who is capable of rebuilding a core service quickly.

Maintenance contracts ensure that there is no slow attrition of broken equipment. Where these can't offer a satisfactory quick response "hot" spares are retained.

3.8 Breadth of service

The service maintains as broad a range of services as possible. Breadth is expensive to maintain so the principal supported platform is Sun Solaris 2.x. Other Unix engines can be accommodated but strictly as turnkey systems for specific tasks; no guarantee is offered that these can be seamlessly integrated with the rest of the system.

4 Staff and Management

The department currently supports 10 FTE COs and 2 CSOs. The associated paper "DCS Service Management Structure" describes the management and committee structures which determine CO duties and responsibilities.

The department has embarked on a programme of job redesign in terms of projects, seeing this as offering the best chance of motivating staff through increased visibility and of keeping accurate control of service priorities. Projects also offer a mechanism for allowing ideas to germinate in a supportive yet controlled manner. This is important as this kind of intrinsic job interest offers the best chance of retaining and motivating staff in an otherwise fairly static environment. Cash is available to allow staff to retrain and attend in-service courses and conferences.

Communications

Aims and intentions

The service assumes any student, visitor or staff member will expect full access at all times to the Internet and that large numbers of users will critically depend on Internet communication to be able to work with colleagues. For this reason mail and news and the communications services they depend on have top priority.

It is expected that services such as mail, news and World Wide Web will evolve in time. Occasionally new services will appear and older flavours of existing services will disappear.

Resource provision

Aims and intentions

The department aims to provide the best general level of hardware resource that funding allows. It is the ultimate aim that all visitors, Postgraduate students and members of staff will have access to the systems via their own bitmap screen. Current equipment pricing make it impossible to realise this by providing all users with their own workstation but the aim should be attainable by judicious provision of a mixture of workstations and X-terminals.

The department has an installed base of some 280 such devices. Funding levels are currently such that most equipment will be 7-10 years old before it can be replaced.

Use of external resources

The department makes use of external services where these are available. Criteria are that such services must be

- Appropriate
- Sufficiently reliable
- Of sufficient scale that their use justifies the learning exercise

Of particular interest are the EdLAN and associated networks, the public microlabs and the Waverley compute server.

Minutes of the Support Review Meeting

JCMB 2511

December 10, 1996

Present: GDMR, AJS, Paul, Gary, LMB, SamO. Apologies: JHB

Office Hours and Rota

It was agreed that 09:30-17:30, excluding lunch, were the "official" support office hours, though in practice there would often be cover outwith those times. The support team felt that it led to a less fragmented day if they worked full- rather than half-days in the support office (as was originally the plan). Everyone felt this was a sensible idea.

It was generally thought a good idea for the support rota and hours to be posted on the noticeboard in the corridor outside the office.

There wasn't always a need for two people to be in the office "doing support" in the afternoons, but it was felt useful for the second person to be there even if they were working on some other task as it helped communication among the support group members.

Non-support Workload

This was still bedding in. Everybody would need to set aside time to get it working properly. Things might become easier once all the room moves had been finalised.

General and Specific Tasks, Training

Mail (postmaster and keeping the queues moving) could be time-consuming to deal with. Unfortunately PP didn't really make it easier, contrary to its claims, and Dave was considering alternatives. Meantime, it was desirable that all the support team were brought up to speed on driving the existing system and the places to look for hints as to its behaviour.

Printers were another area where support could do useful work once they were trained up

Amanda was identified as a big problem area. It was fine while it worked, but if configurations needed changed or anything out-of-the-ordinary had to be done there was a problem with lack of expertise. This was bounced to the gang-of-four to consider further.

Action: G&J

It was felt that our setup was sufficiently non-standard that sending people out on training courses probably wouldn't be worthwhile. What *would* be useful, though, would be "intimate" question-and-answer or practical sessions where the CSOs could explore the workings of some system component with the relevant CO Mail and printing would certainly benefit from this; GDMR would approach Dave and Julian to get something organised. Suggestions for other topics where this kind of treatment would be helpful are invited.

Action: gdmr

Aside: it was suggested that this kind of thing would benefit the COs too, but there was a danger in making the sessions too large and thereby ineffective. Perhaps the syssies "non-progress" meetings should be revived?

Meantime, much of what was required was really just down to experience, which would come through time. Perhaps some kind of communal crib sheet, or "support FAQ" would be useful. The afternoons when two people were in the support office were helpful here.

Equipment

The support office currently has a Sun Classic and an ELC, and a Mac of some unspecified kind. Gary and Sam had X-terminals, while Lindsey had a SS-4 with an Exabyte and a Mac.

It was agreed that it would make more sense for the SS-4 and Exabyte to move to the support office. The hot-spare DAT would also be moved there to make restoring files more convenient and to keep it exercised.

Action: CSOs

John pointed out that the "locks" system ran off the ELC, and would probably never work again if it were replaced.

Equipment needs for individual CSO's desks would become clearer after the room moves were completed.

Action: ajs

Next Meeting

Some time in February, to be arranged

Action: gdmr?

Agenda for "Sysies Progress Meeting"

JCMB 2509

11:00, January 9, 1997

2. Apologies.

3. Minutes of previous meeting (1996/12/05), and matters arising

4. Deferred actions:

| What | Who |
|------------------------------------|-----|
| Mail loop elimination | dwb |
| PDF printing problems (again?) | jst |
| Geoff Ballinger's cut-down clients | dwb |
| Cheap PC firewalls | ajs |

5. Go4 (see attached minutes)

6. Quick (30 second) status updates

| What | Who |
|-----------------------------------|----------------|
| X in general | gdmr, jst |
| X11R6.3 in particular | gdmr |
| WWW | rs, paul |
| Support office | support team |
| Solaris | dwb, rwt |
| Security | gdmr |
| Printing | jst |
| News | dwb |
| Network ports for users' machines | ajs, gdmr |
| Network infrastructure | gdmr, ajs, dch |
| ML | jst |
| Mail | dwb |
| Macs | cc |
| Linux | ajs |
| "In-between" meetings | samo |
| Hardware labs | arch |
| Emacs | cc |
| Documentation, technotes | cc |

"Default environment"
Databases
Configuration mechanisms
Automounters
Anything else

Raised by
jst
dwb, gdmr, rs, ajs
paul *et al*
gdmr
whoever

7. Agenda items:

What

"UNIX workstation" tendering
Lessons learned from power-downs
Macs/Linux/NT
Support review meeting

Raised by
jhb
gdmr, ajs
Go4
gdmr

8. AOCB

9. Date and time of next meeting.

Date: Mon, 16 Dec 1996 16:17:56 GMT
From: John Butler <jhb@dc.ed.ac.uk>
Subject: 0:4 minutes

Gang-of-four meeting, 13/12/96

Mall

Tasks pending:

- * Review of PP and possible move to SENDMAIL.
- * Alleviation of current performance problems: Paul to see if LFCS can provide funds to enhance the current server (Need costings).
- * Timescales for work and any changes need to be decided given other work planned

Action: Paul to see if LFCS can buy mail upgrade
Action: what else?

VLSI

We need a list of priorities from the department.

Action: AJS/JHB to speak to DJR about priorities and options

CO vacancy

Specification to include:
"member of a team...", "Innovative system management...", Web, LaTeX,
Unix, ability to work unsupervised.

Action: JHB to draft something; everyone else to criticise it
Target to have this ready by 20/12

CSO meeting

CSOs could make use of an additional DAT drive somewhere in their office space.

- * Two candidates are:
the stacker DAT (or whatever drive is left after starting a cascade with it)
- * The 'spare' one if its pedigree can be determined and it belongs to us rather than Access

Action: who? to chase up then cascade tape drives

Linuxification Project

The BIOS on the existing Dell 486 machines have a 500Mb available disc space limit under NT (not Linux) so if given disc upgrades are OK linux machines but severely limited NT machines.

Various OSes are interested or will require PCs if they are to become involved in the Linux project:

JST: Interested, especially in the user environment

DWB: Does not feel a territorial imperative over OS2 but reckons he needs to be involved

RS:
New OS:

Provisional machine allocation:

DWB: Upgraded Dell, maybe a high-spec machine later
Paul: High spec machine
JHB: Prepared to be guinea-pig: High spec machine (releases Sun SS/4)
GDMR: Something - when?

This means we'll need two high-spec machines early in the new Year with others to follow.

Other implications

- * We will need a technical discussion and should generate a set of headings for subsequent work.
- * We need an accurate estimate of the teaching requirements of CS1 and CS2 - there are too many unknowns
- * JHB's paper should be criticised and reworked
- * We may need to freeze on 2.5/6 in order to recover maintenance money.
- * The implications of this should be discussed but do include a reduction of pressure for larger discs elsewhere.

Action: AJS/PAUL/GDMR to begin itemising technical headings
Action: JHB to continue reworking concept/justification paper

NTrigue

This was reaffirmed as looking like a useful product to have around. LFCS would see if they could provide some cash support - CS would want to buy in also.

Action: Paul to see if LFCS can fund this

2004 20/12/96

From last time

Backups Carried forward

Faults On hold

Mail M/C Paul still to meet with Don & Gordon. (If any new machine is an Ultra then there would be a Solaris upgrade involved, so it might be necessary to bring forward Dave's sandmail plans a bit.)

VLSI Alastair & Paul spoke to DJR. Solo is still running in SunOS compatibility mode parts of cadence are being used by lots of people viewlogic is still to be evaluated, either in DIY mode on a bare Sun or conceivably on a PC. We need to provide DJR with a Sun for test/turnkey installations.

CO vacancy Has been iterated, and has gone to GRD. More "particulars" are still needed.

CSO Kit There *is* a hot spare DAT, which should go to support. Alastair will check on the position of the stacker with Rainier.

Samson Mike would like us to be nice to Samson for a while, for unspecified reasons. He's reported as having been pleasant to Chris recently.

Macs

Paul "assumed" that Mike was under no illusions about Mac support. (This may not actually be the case...) How do we clarify how things really are?

If a machine/disc fails, it would take 3-4 days to fix the hardware. Meantime the user's environment is in limbo. Backups would be easy to restore onto identical hardware, but considerably messier otherwise or for partial restores as the user's settings aren't cleanly separated from the rest of the stuff on the disc. It would be hard to keep a hot spare, because machines bought at different times are often not identical.

Lindsey needs to come up to speed. Lots of things had prevented this so far. Diagnosing a hardware or software problem can be hard, and this inevitably takes time. Mike, Samson and Poon are particular potential problems, but all (including the secretaries and GRD, who run a standard environment) are really not easy.

In the long term we should drop Macs in favour of NT. Perhaps Nigel could be enlisted to fall Mike. Meantime, we should limit numbers.

NT/Unix stuff would be a good short-term way to spread expertise, and could be a viable long-term answer for some people. Intensive users should have their own desks in the long medium term. Portable NT machines would be secure against people fiddling, so would be easier than Macs. We should be looking to get people to learn about NT/Unix with IT and Linux.

Not much to say. We need to keep things moving.

Monthly review

It should have been done at this meeting! We need a G04 calendar. We'll skip a month this time, rather than mess up the lengths of the accounting periods.

Annual review

What's our role? We should be encouraging suitable people to apply, and help them make a good case.