Efficient IT Service Provision

The Brunel University Experience

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Topics

Design Goals and Issues

Strategy

Design for the Large Scale

Example services

Centralise or distribute?

Design Goals and Issues

Information Services Mission:

- ... significant contribution to the quality of education ...
- ... proactive provision of support ...
- ... teaching learning and research ...
- ... all staff and students.

Scale: 20000+ users, 5000+ seats

Single Image

Resilience

Security

No shoeleather!

Services

IP Network

User Filestore

Application software

Public workareas

E-Mail

Web

Printing

User Registration

Support for everything

Strategy

Network everything

Simplify

Design for the large scale

Automate routine tasks

Use remote control, not sneakernet

Keep it simple!

- Each user gets
  - One username
  - One password
  - One home store
  - One mailbox
- One network protocol
- Two supported operating systems
  - Originally DOS and Solaris
  - Now NT and Solaris (plus Linux?)

Design for the large scale

Name services (Directories) are the key

DNS, YP/NIS, LDAP

Central master databases, distributed replicas

Expendable (dataless) desktop machines

Scripted installations, overnight updates

Servers are created from desktops by script

Dynamic address assignment

Automate file-tree replication

Monitoring and Logging

Filestore services

All servers run Solaris (could use Linux)

Access by NFS and SMB

Naming conventions

`/user/me99/me99ikb`

`/vol/PACK/acrobat`

`/vol/nt/general`

Automounters: Amd, pc.mount

Driven by data in nameservice

Choose ‘best’ server at mount time

Electronic Mail

username@brunel.ac.uk

Firstname.Lastname@brunel.ac.uk

Mailbox stored in home directory

Mail hubs: large Unix servers

- One for incoming mail only
- Four for reading and sending (IMAP, POP)
- Configs replicated from central store

Queue management, quotas, junk mail

Tools

Unix: shell, make, sccs, awk, sed, grep, cron

Perl

Samba: SMB fileserver for Unix

NISGINA: replacement login window for NT

pc.mount: filesystem locator for DOS/NT

atboot: task starter for NT

NTP: time synchronisation

Centralise or Distribute?

Realism: some of each!

Basic central service with local extensions

- Devolved s/w install still hard with NT

Federal model is possible

- Need scalable authentication system
- Need an explicit trust model
- Already happenning (ATHENS etc)
- Application Service Providers?

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There is a curse. They say:

May you live in interesting times

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