Five things you never knew about CSG

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CSG Systems Manager,
Dept of Computing,
Imperial College London

29th May 2013
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Once upon a time.

- CSG tried to do everything..
- often CSG and DoC were first (eg. Internet, Email, WiFi)..
- But over time ICT caught up..
- now ICT provide general IT and Comms support..
- CSG concentrate on doing distinctive things that ICT don't do.
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ICT services improve
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Current
ICT do general IT support – leaving CSG to specialise

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- High Performance Computing (we have Condor running on desktop PCs, but ICT spend £1m per annum on HPC clusters). DoC should use the HPC kit more!
- Mac support and Windows laptop support, provided by our in-house ICT Faculty Support engineer - currently Niels Boyadjian. (Although we’ll help on a best effort basis if Niels is not in the room).
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- **Windows Support**: CSG maintain two or three supported “DoC desktop Windows builds” and “DoC server Windows builds”. Currently **Windows 7** for desktops, **Windows Server 2008** and **Windows Server 2012** for servers.
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- **Refresh Desktop PCs (and Macs)**: Each year we receive about **15** free staff PCs, and about **40** free lab PCs, under the College PC renewal scheme. The Dept typically buys another **140** PCs for new PhDs, RAs, staff, and the labs.
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  - Apache web servers.
  - Microsoft IIS/.net webservers.
  - Postgres database servers.
  - Microsoft SQL database servers.
  - Departmental database Postgres servers (teachdb, cate etc).
  - TFs autotesting/continuous integration servers.

- For research groups:
  - Individual fileservers, web servers etc.
  - Compute clusters (some brand new, others quite elderly).
  - Clusters with specialist hardware eg, Wayne's GPU servers.
  - Plus of course the recently purchased Departmental cloud servers, currently doing service as experimental proto-clouds, or ad-hoc compute servers/clusters.
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- Recently, desktop network sockets now auto-configure themselves onto the right network VLAN when you plug a known device in. More convenient all round!

However: not all sockets are connected (patched to a switch port). Still have to ask us/ICT to patch a socket.

Over the summer, ICT's network contractor A-Tech are replacing all DoC desktop network wiring in levels 3 to 5 Huxley. More network sockets for everyone (4 per person), more reliable, plus: ICT take over patching responsibility.

We can request extra network sockets in blocks of 4 via ICT, free of charge.

VOIP (Voice-over-IP) phones will follow new wiring.

For servers: ICT now offer copper 10Gb ethernet via "top of rack switches" - we have bought 4 x 10Gb network switches, first two installed in Huxley machine room. Core fileservers to get dual 10Gb connections over the summer.
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- This keeps our computers more secure, more up to date, risk: slightly greater instability - we’re being very cautious!
No 3: CSG have a Yearly Cycle

- Start of Spring Term
- Start of Summer Term
- Start of Autumn Term
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- **Start of Spring Term**: April
- **Start of Summer Term**: June
- **Start of Autumn Term**: September

**Stages of the Yearly Cycle**:
- **Xmas Linux pkg refresh**
- **Easter Linux pkg refresh**
- **Autumn Linux pkg refresh**
- **Summer Linux pkg refresh**
- **DoC Ubuntu YY.04 build**
- **Ubuntu YY.04 in prod**
- **DoC Ubuntu YY.04 build packages**
- **DoC Ubuntu YY.04 build ready for CSG testing**
- **Ubuntu YY.04 released**

**Tasks for PC Management**:
- **Plan nos of PCs to buy/refresh**
- **Specify std PC for next Ac Yr**
- **Reinstall lab PCs**
- **Deploy PhD/RA PCs**
- **Deploy new lab PCs**
- **Buy bulk PCs**

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- **Start DoC Ubuntu YY.04 build**: Deploy new lab PCs
- **Ubuntu YY.04 in prod**: Buy bulk PCs
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- **Reinstall lab PCs**: Deploy new lab PCs
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No 5: CSG write original software

- CSG members write, and maintain, quite a lot of original software, large and small. For instance:

  - **LEXIS** - Linux Exam Invigilation System: Originally written in Ruby by Mike Wyer, I have completely rewritten this in threaded Perl, which runs approx 30x faster.

  - **TINT** - Tint is Not Tar (sorry): a near-tar replacement used in our backup system that does more than Gnu tar does (checksums, sorted traversal and information gathering), in less time, and produces smaller archive files!

  - Gary Corrall has recently joined us, and has implemented a flexible and attractive "repeating announcements" web interface for the new information displays beginning to appear on level 2, William Penney entrance hall soon.

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Our function is to serve this Dept. We only exist to serve you.
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• Please tell us, what more do you think we should be doing?

One thing we'd love to do better is to shrink the tail faster - i.e. manage to retire or reinstall old computers, especially those experimental PCs lurking in research labs, and ancient compute clusters. How could we do that?

We can offer you virtual servers (currently using VMware ESX), and you can create yourself virtual machines on your desktop PC (currently using VirtualBox).

When we have a Cloud Manager, we'll also build our production DoC private cloud, with the ability to create cloud instance VMs on the fly.

In the meantime, is there anything more we should be doing re: virtualisation?

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• One thing we’d love to do better is to shrink the tail faster - i.e. manage to retire or reinstall old computers, especially those experimental PCs lurking in research labs, and ancient compute clusters. How could we do that?

We can offer you virtual servers (currently using VMware ESX), and you can create yourself virtual machines on your desktop PC (currently using VirtualBox). When we have a Cloud Manager, we’ll also build our production DoC private cloud, with the ability to create cloud instance VMs on the fly.

In the meantime, is there anything more we should be doing re: virtualisation?

Thank you very much for listening. Please send comments and suggestions to me.

Duncan White (CSG)
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