

# Edinburgh site report

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*HEP SYSMAN '09*  
30 June 2009

# Staff



- “Goodbye”
  - Sam Skipsey and Greig Cowan
- “Hello”
  - Wahid Bhimji and Andy Washbrook

# PPE infrastructure



- 21 Desktops: SL5.3, central mgmt
- 3 Servers: 5TB shared
- ~15 laptops
- gLite tarball UI
- Condor pool: 334 cores

## Edinburgh Compute and Data Facility (ECDF)

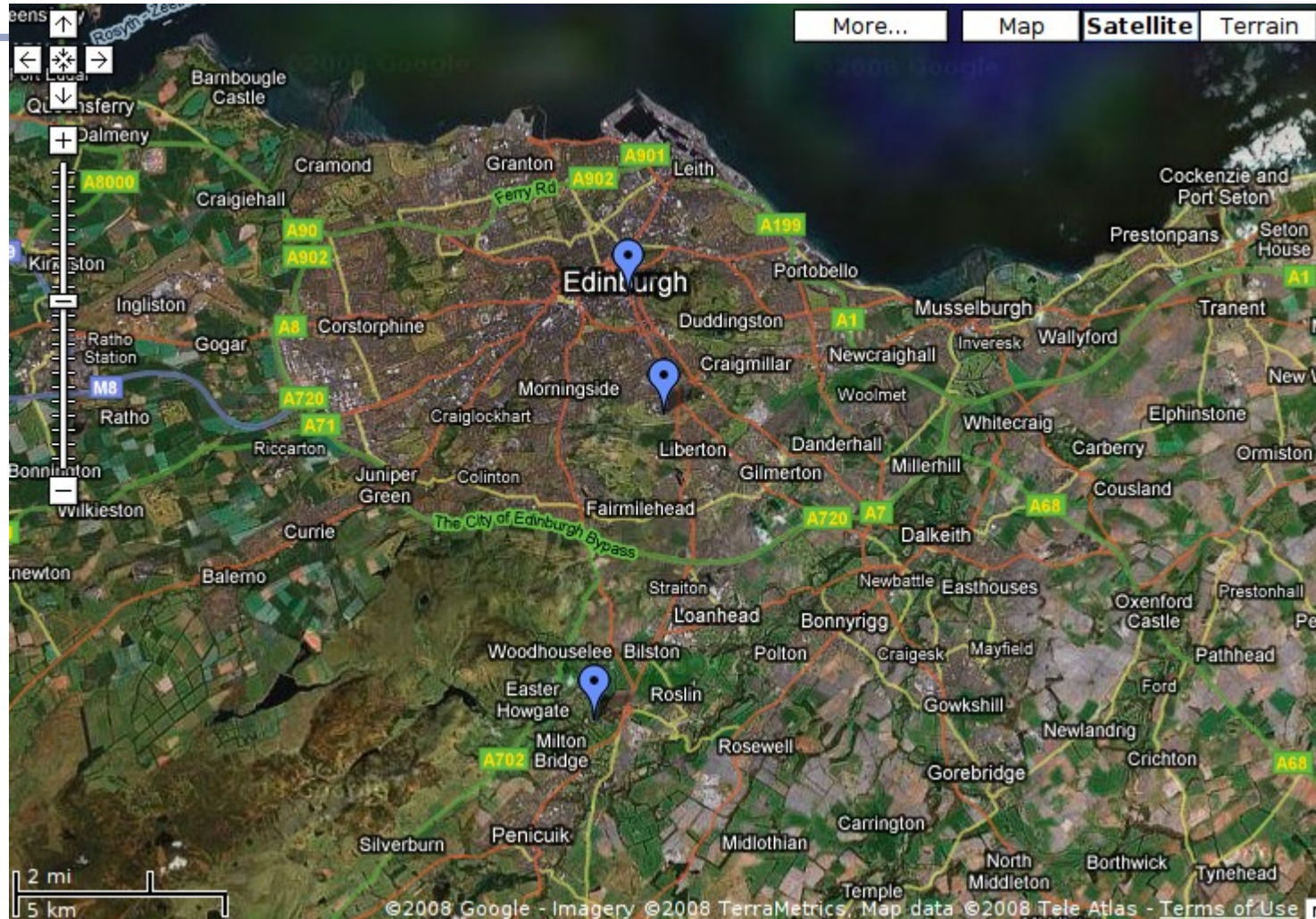
- 1456 cores. Woodcrest 5160/Harpertown X5450
  - 2 GB RAM/core
  - Infiniband (240 cores)
  - HEPSPC06 9.5/core (5160)
- Sun Grid Engine
- Over 275 TB storage, GPFS
- 2 × GigE
- Scientific Linux 4.x



## For Edinburgh researchers

- 25 % free at point of use, 75 % from grants, fEC, ...
- ~300 registered users: 90 % satisfied, 50 % highly satisfied
- ~10 % GridPP
- Heavily used

# Distributed



# gLite



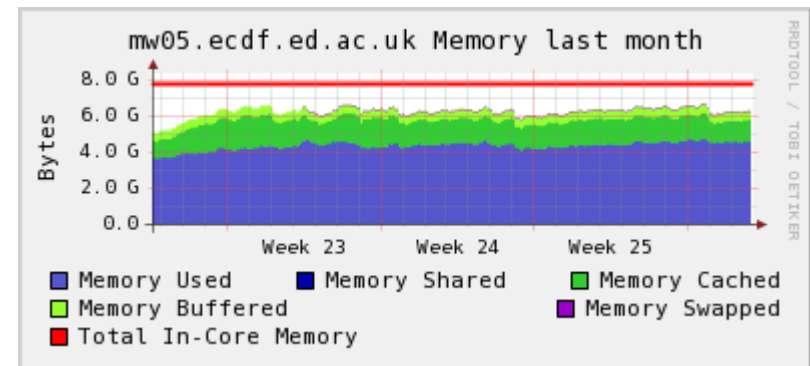
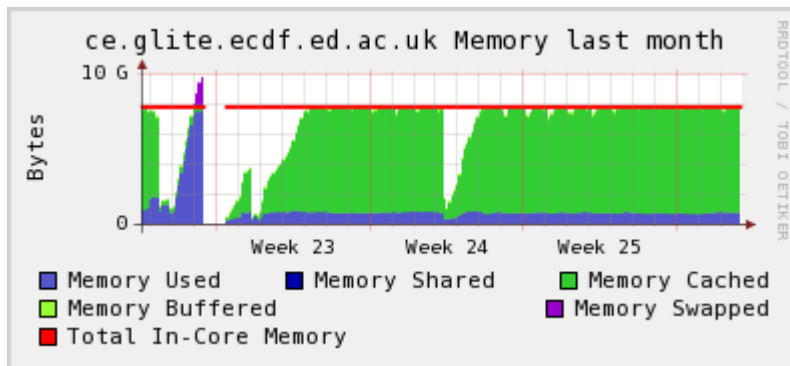
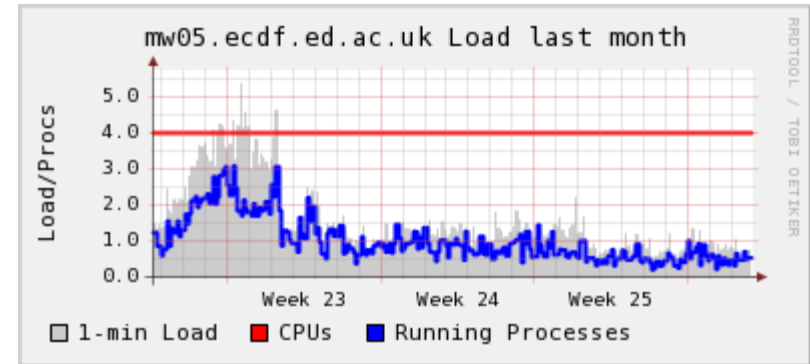
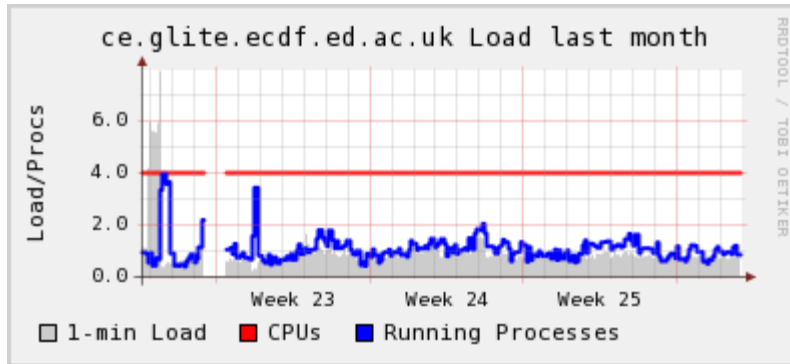
- 2 × LCG CEs: SL3, SL4 (x86\_64)
- 1 × MON: SL3
- 1 × Site BDII: SL3 (shared with UI)
- 1 × DPM headnode: SL4 (x86\_64)
- 2 × DPM pools: SL4 (x86\_64)
  - 30 TBytes total (+ ~70 TB GPFS)
- Ganglia, Nagios
- No config. management - stupid!

# Problems



- Staffing...

# CE load & mem





- *25 Sep:* java.lang.OutOfMemoryError: Java heap space
- *24 Nov:* java.io.EOFException
- *1 Dec:* java.lang.UnsupportedClassVersionError: org/bouncycastle/jce/provider/BouncyCastleProvider (Unsupported major.minor version 49.0)
- *6 Feb:* java.lang.OutOfMemoryError
- *17 Feb:* java.sql.SQLException: The table 'EventRecords' is full

- **stdout:**

```
Executing command: export X509_USER_PROXY=/tmp/globus-  
tmp.node225.21545.0;voms-proxy-info -actimeleft
```

```
06 Mar 2009 15:27:36| !!WARNING!!2999!! Voms proxy  
certificate does not exist or is too short. Command  
output: WARNING: Unable to verify signature! Server  
certificate possibly not installed.
```

```
Error: Cannot find certificate of AC issuer for vo atlas  
343946
```

```
06 Mar 2009 15:27:36| !!FAILED!!1999!! Did not find a valid  
proxy, will now abort
```

- create a proxy, cp to node, check:

```
$ voms-proxy-info
```

```
WARNING: Unable to verify signature! Server certificate  
possibly not installed.
```

```
Error: Cannot find certificate of AC issuer for vo dteam  
subject      : /C=UK/O=eScience/OU=Edinburgh/L=NeSC/CN=steve..  
issuer       : /C=UK/O=eScience/OU=Edinburgh/L=NeSC/CN=steve..  
identity     : /C=UK/O=eScience/OU=Edinburgh/L=NeSC/CN=steve..  
type         : proxy  
strength     : 512 bits  
path         : /exports/work/poolhomes/dteam/dteam001/x509up..  
timeleft    : 11:26:55
```

- **strace**

```
$ strace -fF -o strace.out voms-proxy-info -all
open("/etc/grid-security/vomsdir", O_RDONLY|O_NONBLOCK|
  O_LARGEFILE|O_DIRECTORY) = -1 ENOENT (No such file or...
open("/exports/work/middleware/WN/etc/grid-
  security/certificates", O_RDONLY|O_NONBLOCK|O_LARGEFILE|
  O_DIRECTORY) = 5
open("/etc/grid-security/vomsdir/dteam/voms.cern.ch.lsc",
  O_RDONLY|O_LARGEFILE) = -1 ENOENT (No such file or dir...
open("/etc/grid-security/vomsdir/dteam", O_RDONLY|
  O_NONBLOCK|O_LARGEFILE|O_DIRECTORY) = -1 ENOENT (No suc..
write(2, "WARNING: Unable to verify signat"..., 80) = 80
write(2, "Cannot find certificate of AC is"..., 49) = 49
```

- Set X509\_VOMS\_DIR

```
$ vi /etc/profile.d/grid-env.sh
```

```
...
```

```
gridenv_set "X509_VOMS_DIR"
```

```
    "/exports/work/middleware/WN/etc/grid-security/vomsdir"
```

- What else does strace reveal?

```
open("/home/glbuid/GLITE_3_0_3_RC1/stage/lib/tls/i686/mmx/libvomsapi.so.0", O_RDONLY) = -1 ENOENT (No such file or directory)
```

```
stat64("/home/glbuid/GLITE_3_0_3_RC1/stage/lib/tls/i686/mmx", 0xbfffc610) = -1 ENOENT (No such file or directory)
```

```
open("/home/glbuid/GLITE_3_0_3_RC1/stage/lib/tls/i686/libvomsapi.so.0", O_RDONLY) = -1 ENOENT (No such file or directory)
```

```
stat64("/home/glbuid/GLITE_3_0_3_RC1/stage/lib/tls/i686", 0xbfffc610) = -1 ENOENT (No such file or directory)
```

```
:-(
```

# strace...



- File modification
  - open|create|openat|truncate|ftruncate|truncate64|ftruncate64, esp. with flags O\_WRONLY|O\_RDWR
- Moving, removing, and linking
  - unlink|unlinkat|rename|renameat|link|linkat|symlink|symlinkat
- Directory operations
  - mkdir|mkdirat|rmdir
- Ownership and permission changes
  - chmod|fchmod|fchmodat|chown|fchown|fchownat|lchown|chown32|fchown32|lchown32

# strace...



- Extended attributes
  - setxattr|lsetxattr|fsetxattr|removexattr|lremovexattr|fremovexattr
- Special files, file system ops
  - mknod|mknodat|mount|umount|umount2
- Syslogging

```
connect(5, {sa_family=AF_FILE, path="/dev/log"}, 110) =  
0
```

```
send(5, "<35>Jun 25 13:57:24 sshd[18610]:"... , 98,  
MSG_NOSIGNAL) = 98
```



- tcp support in newer traceroutes

```
# traceroute -T -p 9618 mw02.ecdf.ed.ac.uk
```

```
traceroute to mw02.ecdf.ed.ac.uk (129.215.95.136), 30 hops max, 40  
byte packets
```

```
1 129.215.31.254 (129.215.31.254) 0.590 ms 0.580 ms 0.576 ms  
2 vlan360.kb6.net.ed.ac.uk (129.215.0.242) 0.545 ms 0.535 ms  
0.530 ms  
3 vlan688.srif-kb1.net.ed.ac.uk (129.215.255.242) 0.510 ms  
0.501 ms 0.740 ms  
4 vlan674.srif-bush1.net.ed.ac.uk (129.215.255.238) 0.734 ms  
0.726 ms 0.971 ms  
5 vlan674.srif-bush1.net.ed.ac.uk (129.215.255.238) 3000.330  
ms !X 0.795 ms !X *
```

# firewalls



```
# traceroute -T -p 80 mw02.ecdf.ed.ac.uk
traceroute to mw02.ecdf.ed.ac.uk (129.215.95.136), 30 hops max, 40
  byte packets
 1  nesc-staff-gw.nesc.ed.ac.uk (129.215.30.126)  0.880 ms  1.444
    ms  2.009 ms
 2  vlan301.oc5.net.ed.ac.uk (129.215.0.6)  3.913 ms  4.887 ms
    5.872 ms
 3  vlan360.kb6.net.ed.ac.uk (129.215.0.242)  6.848 ms  7.810 ms
    8.760 ms
 4  vlan688.srif-kb1.net.ed.ac.uk (129.215.255.242)  9.695 ms
    10.631 ms  11.559 ms
 5  vlan674.srif-bush1.net.ed.ac.uk (129.215.255.238)  12.819 ms
    13.815 ms  14.799 ms
 6  mw02.ecdf.ed.ac.uk (129.215.95.136)  21.526 ms !X  4.891 ms !X
    6.816 ms !X
```

# Future

- GridPP share reduced (no more funding)
- ECDF Phase II
  - On the floor May 2010
- Reinstall most frontends
- Config. management
- Consolidate NGS/gLite/GridPP

# Questions?

