

Taking the C out of CVMFS

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Background

The Cern Virtual Machine File System.

- ▶ Caching
- ▶ Deduplication
- ▶ Secure (shared key for repository access)
- ▶ Uses open standards (http, squid-cache)
- ▶ Required by WLCG VOs (so, “guaranteed” support base)

Host Configuration

Due to space and equipment constraints, the CVMFS server is hosted on a virtual machine. Load was actually very low, thanks to caching on squid.

- ▶ yum install cvmfs-server
- ▶ cvmfs_server mkfs local.gla.scotgrid.ac.uk
- ▶ (unpack into /cvmfs/local.gla.scotgrid.ac.uk)
- ▶ cvmfs_server publish

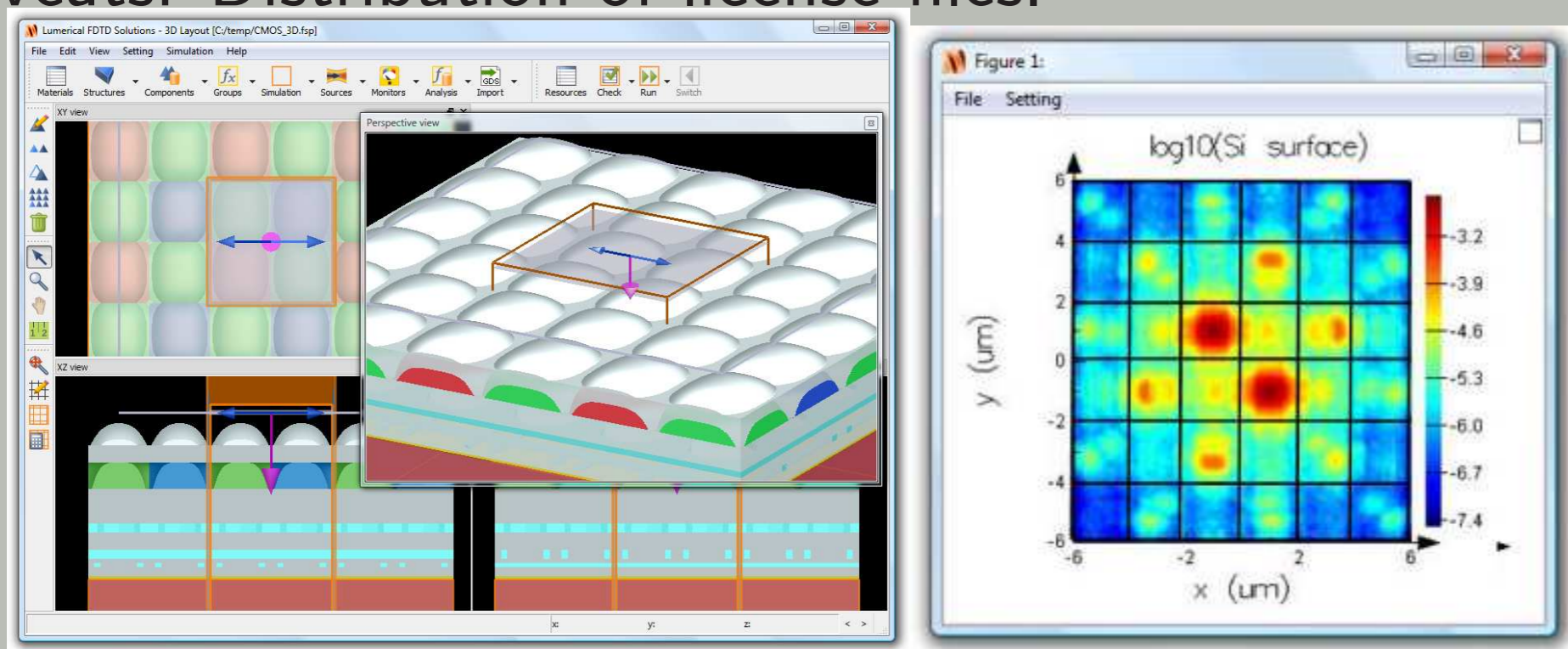
Restrictions

- ▶ CVMFS 2.x requires the currently unsupported redirfs kernel module on the server
- ▶ (Next big release of CVMFS server will move to aufs, which is an actively developed project)

Test Case 1: vo.optics.ac.uk

- ▶ “Virtual” VO : no actual guaranteed VO specific support
- ▶ Encapsulates users of proprietary Optics software: “Lumerical”

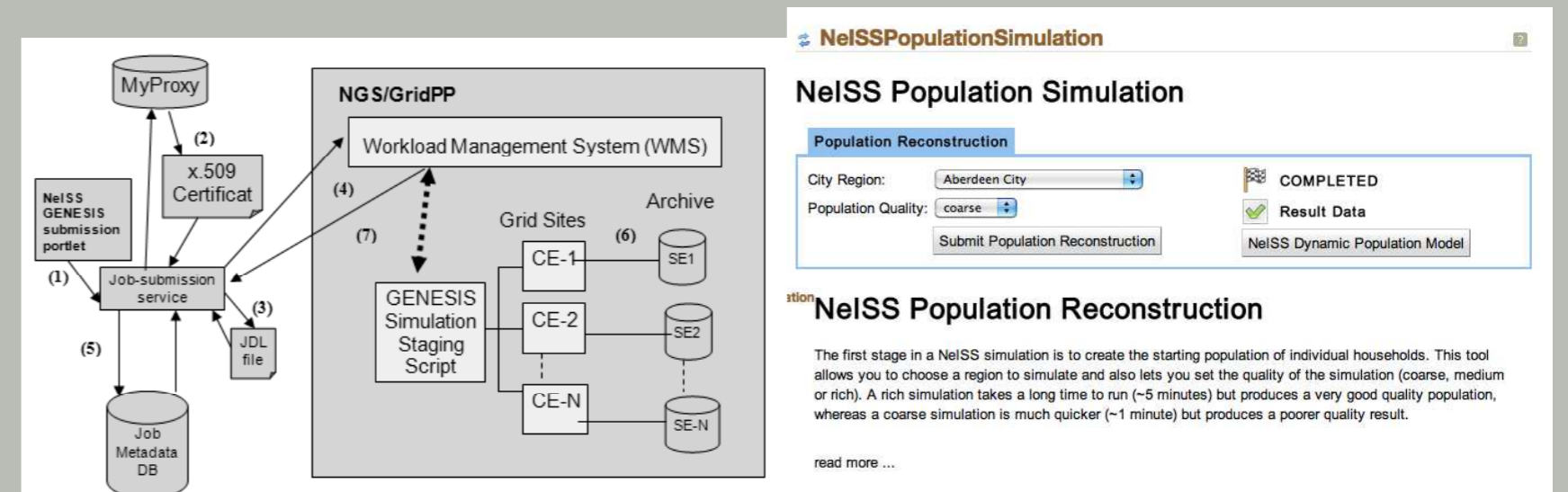
Caveats: Distribution of license files.



Test Case 2: neiss.org.uk

NEISS.ORG.UK

- ▶ < 1 FTE support effort for whole VO
- ▶ Want to expand across UK...
- ▶ Currently ship all software with jobs as can't rely on site configuration
- ▶ Software is relatively static (occasional release updates)



CVMS client configuration

./etc/cvmfs/default.local

```
#CVMFS_USER=cvmfs
#CVMFS_NFILES=32768
#CVMFS_DEBUGLOG=/tmp/cvmfs.log
CVMFS_REPOSITORIES=atlas.cern.ch, atlas-condb.cern.ch, lhcb.cern.ch,
cms.cern.ch, geant4.cern.ch, sft.cern.ch, local.gla.scotgrid.ac.uk
CVMFS_CACHE_BASE=/tmp/cache/cvmfs2/
CVMFS_QUOTA_LIMIT=10000
CVMFS_HTTP_PROXY="http://nat005.gla.scotgrid.ac.uk:3128"
```

./etc/cvmfs/domain.d/local.gla.scotgrid.ac.uk.conf

```
CVMFS_SERVER_URL=${CERNVM_SERVER_URL:= "
http://vm004.gla.scotgrid.ac.uk/cvmfs/local.gla.scotgrid.ac.uk/" }
CVMFS_PUBLIC_KEY=/etc/cvmfs/keys/local.gla.scotgrid.ac.uk.pub
```

ls -l /etc/cvmfs/keys/

```
total 40
-r--r--r-- 1 root root 451 Feb 13 08:35 cern-it1.cern.ch.pub
-r--r--r-- 1 root root 451 Feb 13 08:35 cern-it2.cern.ch.pub
-r--r--r-- 1 root root 451 Feb 13 08:35 cern.ch.pub
-rwxr-xr-x 1 root root 451 Apr 27 12:25 local.gla.scotgrid.ac.uk.pub
```

Summary

CVMFS was shown to be an easy to configure solution for small scale VO software management. Load on the VM host was low and easily handled.