NIKHEF Testbed1 Setup

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08 January 2001
Last edit 08.01.2001

We started with the Storage Element since NIKHEF is running some of the Replica Catalogues (RC). In restrospect, this was not necessary since the RC's are really only LDAP directories and don't need any grid stuff installed.

1 Storage Element Setup

We started from the instructions and RPM lists provided by Flavia Donno (see various emails on the Integration Team mailing list archive, or `http://www.pi.infn.it/~flavia/se_config.html`. We had to make various changes to get everything to work, but this document (as well as the LCFG config files provided by INFN) were excellent starting points.

1.1 Security

1.1.1 Host certificates/keys

These were installed as requested. However there is a problem: these certificates and keys need to be stored somewhere else (a different machine) and copied over by hand in case the machine gets re-installed for some reason. We will investigate the use of a `filecopy` object to automate this process. It certainly doesn't scale if you have to do it by hand!

1.1.2 grid-mapfile

There is no easy way to do this correctly except use a shared filesystem, especially if one wants dynamic accounts. As far as we understand, this *requires* a shared filesystem. We made the LCFG server regenerate the grid-mapfile once per day using the `edg-gridmapfile-upgraded` daemon (from the `edg-utils-1.0.11-1` rpm package). The file is written to `/share/grid-security/grid-mapfile` on the LCFG server. This directory (which also contains the `gridmapdir` directory) is mounted on all the clients, and symbolic links to `grid-mapfile` and `gridmapdir` are placed in `/etc/grid-security`.

It turned out that dynamic accounts did not work. What needed to happen: a line in `globus.conf` needed to be added to specify the value of `GRIDMAPDIR`. This was done by adding it to `StorageElement.h` (profile file of LCFG). Also, a file needed to be created (a simple touch is enough) in GRIDMAPDIR for each pooled account. This was posted to bugzilla (bug #174).

Comment on `gridmapfile-upgraded`: recommend to change name from *upgraded to *updated (upgrade implies some kind of improvement in functionality).

1.2 GRAM and GRIS

1.2.1 synchronization

We used xntp3 daemon to synchronize to a local time server. Similar comments apply here; there is no LCFG object that we know of for configuring the xntp daemon. Since the EDG middleware requires one to configure time synchronization (or employ someone to check and fix sync problems) we expect WP4/WP6 to provide a LCFG configurator for this daemon.

1.2.2 edginfo user

This was created automatically, apparently by the Storage Element profiles provided by INFN.

1.2.3 globus.conf modifications

These were also carried out automatically, presumably by INFN's globus object. This has to be configured in the "site.h" profile file of LCFG, but I don't believe any of these fields depended on my changes.

1.2.4 info-mds.conf configuration

Here are the things we actually needed to change. I didn't change them in this file, they were changed in the "site.h" profile file, and the globus LCFG object automatically generated the info-mds.conf file. I only list the ones I think are important for SE configuration below, and only the ones I really changed.

```
SITE_DN=dc=nikhef,dc=nl,o=grid
SITE_INFO=yes
SITE_NAME=NIKHEF
SITE_INSTALLATION_DATE=20020104142800Z
SITE_SE_HOSTS=tbn03.nikhef.nl
SITE_CE_HOSTS=tbn02.nikhef.nl
NETMON_PRESENT=no
SITE_NETMON_HOST=tbn02.nikhef.nl
SE_PRESENT=yes
SE_ID=tbn03.nikhef.nl
SE_SIZE=33
```

```
SE_TYPE=disk
SE_FILESYSTEMS=/dev/hda2
SE_CLOSE_CE=tbn03.nikhef.nl
SE_PROTOCOLS=gridftp,rfio,file,nfs
SE_PROTOCOL_PORTS=2811,3147,
```

A couple of issues:

- What the heck format is the "installation date" string? How does one generate such a string from e.g. a unix `date` command?
- I don't really have a `SITE_NETMON_HOST` but I couldn't get the MDS running unless I gave a value for it. I didn't see it in any of the docs I read. New information: "none" is an acceptable value for this. Apparently there was a lag in getting docs propagated through the system. WP3 had already documented this but it hadn't made it to WP6 yet.
- There is the following comment in Flavia's docs: "If the Storage Element NFS-serves some filesystem to the Computing Element allowing for local file access from the CE, then you should make sure that the right info are specified in the static information for the CE and the right mount point is specified for this SE." I am not sure what to do with this. The only reason I can think to have an SE serve files to a CE is so the CE can write directly to the SE. But then, don't you want to mount `/home/flatfiles` instead? How about providing a usage example for why/how one would do this?

At this point, I can query the SE information index from CERN and get reasonable answers.

2 GSI_wuftpd configuration

I executed the commands in the Donno instructions. At first they didn't work. I tried just starting and stopping the daemon a few times (stop/start commands to the init.d script). After a few it "just worked". No idea why. I didn't test it yet.

A question: GSIftp used several different ports (I thought) to implement multiple streams during ftp transfers. The allowed range of ports to be used should be documented in the EDG-Install document.

3 Starting the gatekeeper

Same story as above. I typed the commands, and at first it didn't work. A pair of "stop/start" commands to the init script for some reason "woke it up".

4 Configuring GDMP

This couldn't really be done via the LCFG since LCFG's gdmp configurator assumes only one copy of gdmp running. Below are some notes on how we tried to do it by hand following Flavia's instructions. We didn't actually use this since LCFG destroys some of the configuration every time the profile is updated.

- it says in Flavia's docs to run `configure_gdmp` with an argument of 2000. The correct port number (different for each VO) should be used.
- in order to prevent cross-VO activity, we created `/home/flatfiles` so that user `gdmp` owned all the files, but each VO's group owned its own files, and each VO subdir of `/home/flatfiles` was only group writable (not world writeable). A person executing a command on the SE is mapped to the proper user ID, which has the group ID of the VO, so e.g. a CMS person can write to `/home/flatfiles/cms` but not to others.

```
[root@tbn03 /home]# cd flatfiles/
[root@tbn03 flatfiles]# /bin/ls -ltr
total 24
drwxrwxr-x 2 gdmp alice 4096 Jan 9 13:21 alice
drwxrwxr-x 2 gdmp atlas 4096 Jan 9 13:22 atlas
drwxrwxr-x 2 gdmp cms   4096 Jan 9 13:22 cms
drwxrwxr-x 2 gdmp lhcb  4096 Jan 9 13:22 lhcb
drwxrwxr-x 2 gdmp eo    4096 Jan 9 13:22 earthob
drwxrwxr-x 2 gdmp bio   4096 Jan 9 13:22 biomedical
```