



LCFG Installation



- Steve Traylen.
- LCFG – A tool for installation and configuration.
- UK HEP SYSMAN, RAL.
- 22nd April 2002.





About LCFG

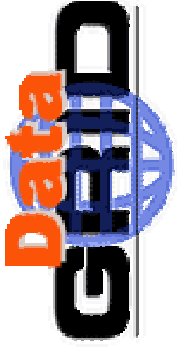


- Started at Edinburgh 9 years ago by Alastair Scobie and Paul Anderson.
- Installs an RPM based Linux system and configures it.
- Each machine defined by exactly one profile.
- Management also possible; the main difference to Kickstart type methods.





LCFG Server Components.

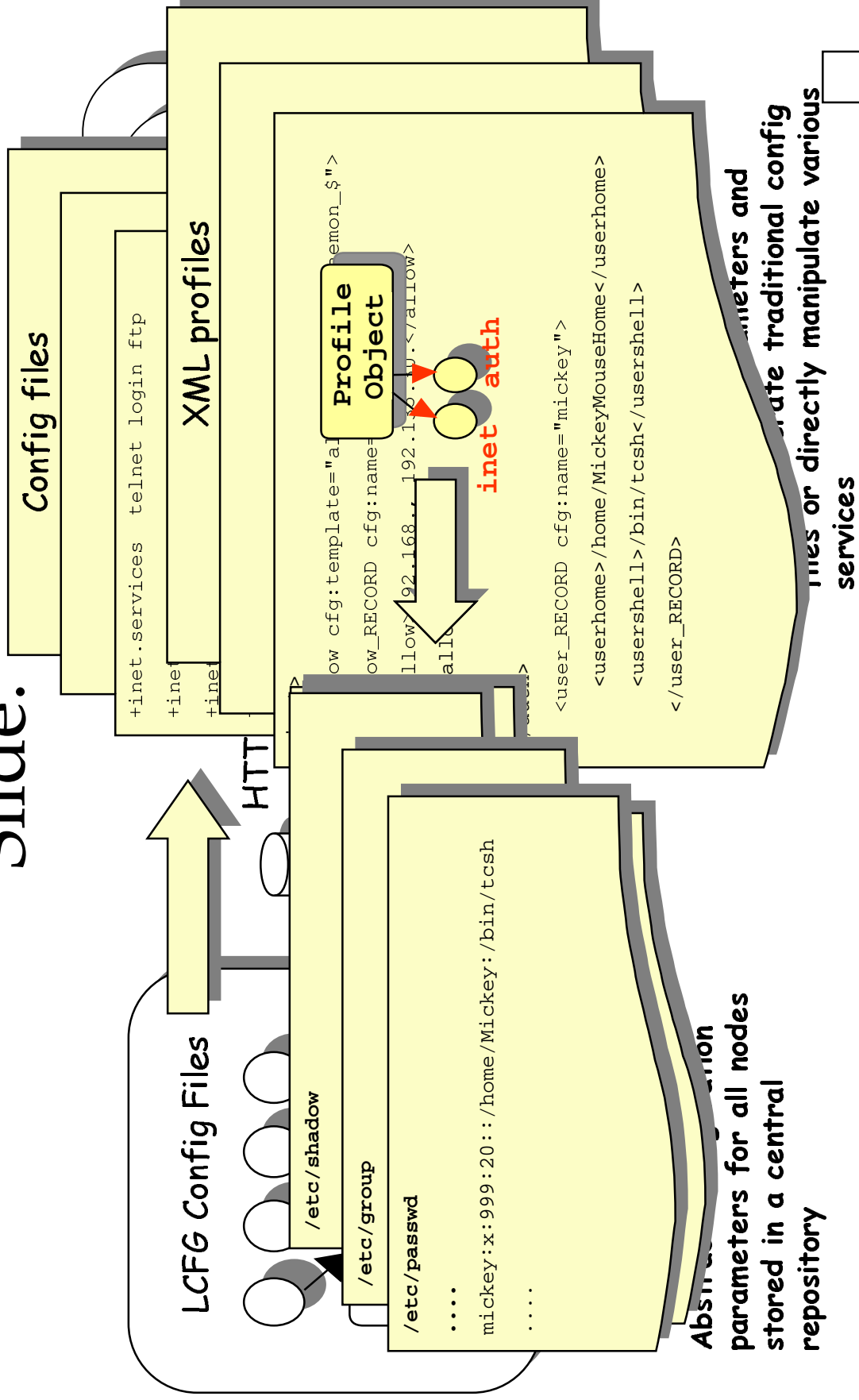


DHCP Server	Provides network information.
Software	Manages the rpm repository and machine profiles.
NFS Server	Serves RPM repository.
Web Server	Server XML machine profiles.



How LCFG Works in One

Slide.





Documentation



- Server installation guide from WP4
<http://datagrid.in2p3.fr/distribution/datagrid/wp4/documentation>
- Testbed installation guide using LCFG from WP6
<http://www.inl.infn.it/datagrid/wp4-install>
- LCFG Extras, experiences from RAL.
<http://www.gridpp.ac.uk/tb-support/lcfg-extras/>



- Install a plain Redhat 6.2.
- Directory `/opt/local` requires 4-6 gigabytes.
- Apply Redhat's updates except for RPM v4.
- Install `edg-updater-1.0.1.rpm`.
- Review `man updater` and /etc/updater.conf .`
- Running `/usr/sbin/updater` grabs everything.
- Install RPMs in documentation.

Prepare NFS

- Directory `/opt/local/linu` contains all the RPMs and rpm lists.
- Add `/opt/local/linu ro` to `/etc/e ports`.
- LCFG clients use an NFS mounted root file system at install time located at `/opt/local/linu /installroot/ .`
- RPM list for root file system is `/opt/local/linu / . /rpmcfg/installroot`
- Run `ma e installroot` to build the root fs `/opt/local/linu /installroot`.

- Maintained in CVS as module `edg-release`.
- CVS tag of `edg-release` is the overall version of datagrid software, e.g. 1.0, 1.1, 1.1.2 - 1.2
- Set up CVS as described and check out the current release:

```
c s c ec out r 1 1 edg-release.
```
- Profiles: `cp edg-release/source/
/ ar/ob /conf/profile/source/`.
- RPM lists: `cp edg-release/rpmcfg/
/opt/local/linu / . /rpmcfg/`.





Customise Machine Profile



- Located in `/ ar/ob /conf/profile/source`.
- Edit `site-cfg`. => `globus.conf`, `info-mds.conf`, `gdmp.conf` and others.
- Files `testbed001-testbed00` are sample UI, CE, SE and WN. Rename one, e.g. `gppui`.
- Edit `gppui`; hostname and hardware.
`update.modlist eepr0100`
`update.mod eepr0100 alias et 0 eepr0100`
`update.rootp d a f`



- Compile `gppui` profile with `/usr/sbin/m prof gppui`.
- Common errors include:
 - File not found.
 - Undefined attributes.
 - Duplicate values.

Verify RPM Lists

- Located in `/opt/local/linu / . /rpmcfg`.
- One per node type, CE-rpm, UI-rpm, NM-rpm, RB-rpm, SE-rpm and WN-rpm.
- Use `ma e create -rpm`.
- Common errors:
 - File not found.
 - Missing RPMS caused by update in the lists or updates in available RPMS.

- Boot floppy disk provided.
- Boot procedure:
 - Kernel boots.
 - Broadcast for network values.
 - Mount NFS root file system, `init=/etc/dcsrc`, download machine profile.
 - Partition and format hard disk.
 - Mount hard disk, install RPMS.
 - Install MBR with LILO.
 - Reboot, configure according to profile, reboot.

LCFG, What Is Good?

- Configuration is modular so similar machines are easy.
- Configuration can be modified.
 - Converting a CE to an SE, less than a minute.
 - Installing and backing out is possible.
- Snap shot of configuration is available including all the tiny incremental

LCFG, What is Bad?

- Adds a whole new layer of configuration.
 - Sysadmins have to learn to configure `/etc/resol.conf` again.
 - A software developer knows how to configure `/etc/edg/info-mds.conf` but not `/var/obj/conf/profile/source/ComputingElement.h`.
- Security problems: host authentication is weak, no shadow passwords.