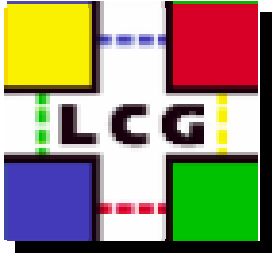


The New Manual Install

01/11/2004

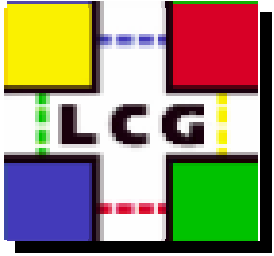
Laurence.Field@cern.ch



Why Do We Need It ?



- Documents the configuration
 - Understand the middleware configuration
 - Very useful during porting and integration
- Independent of fabric management tools
 - Can be used to help integrate with a sites fabric
- Most flexible method for installation.
 - Highly configurable.
- No need for an Installation Server.
 - Too much effort for small sites
 - Uses an extra node that will be idle



Problems



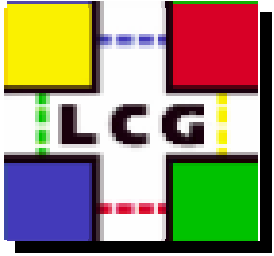
- Many pages of documentation.
 - Most people can not be bothered to read it.
- Time consuming.
 - Time we don't have !
- Error prone.
 - Too easy for mistakes to be made.



Automating



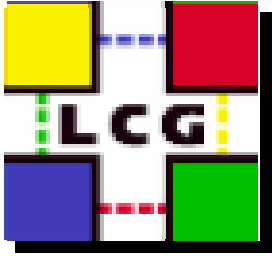
- Scripting the manual install
 - Improves efficiency.
 - Makes it less error prone.
- People are writing their own scripts.
 - 5 people in LCG deployment group alone!
 - Duplication of work
 - All Monolithic Scripts and specific.
 - No quality control.
- How could we converge?



Convergence



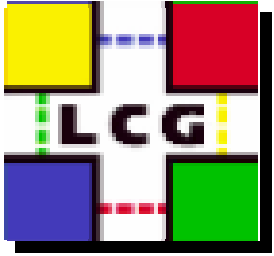
- Split the scripts into bash functions.
- Each function
 - Configures something unique
 - Roughly follows the manual install guide sections
 - Is standalone
 - Contained in a separate file.
 - Makes maintenance easier
- Configuration scripts are built from functions
- New scripts can easily be created
 - Reusing common functions



How it works



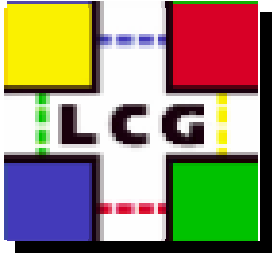
- Key value pairs in a site config file.
 - One config file use for all node types.
 - Similar to site-cfg.h in LCFGng
- Source site config file
- Source function
- Run function.
- Encapsulate this into a script
 - Eg `. configure_classic_SE <site-config>`
- Include all this in an rpm.
 - Add the rpm to the release



New Manual Install



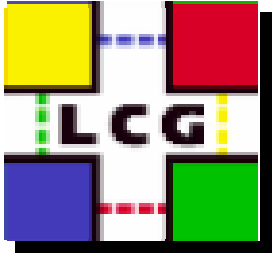
- Install OS (SL3 or RH7.3)
 - Kickstart, CD etc.
 - Ensure NTP is configured
 - Install and configure apt
- apt-get middleware rpms
- Modify site config file for the site
- Copy site config file (and certs) to node
- Run configuration script



Extensibility



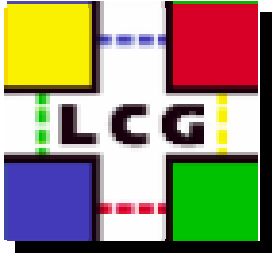
- Sites with unique batch systems etc.
 - Can still use common functions
 - Do the manual install steps for their system
 - Write their own script using the functions
- Installation and configuration separate
 - Rpms can be updated separately.
- Easy to update CA rpms and bug fixes
 - Update configuration by updating one rpm.



Advantages



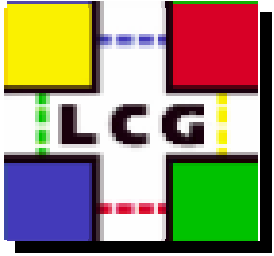
- No need for an installation server
 - Can use an existing kickstart server etc.
- Very easy to use.
 - Less than 30 minutes to install a site.
- Assuming the OS has already been installed
- LCG configuration by default
 - Less in-depth knowledge needed by sites.
 - Fewer configuration mistakes made!
- Tuning can always be done manually



Tar Ball Distribution



- Tar balls are available for the UI and WN
 - Could also be called “re-locatable distributed.
- A user can install and configure a UI.
- The WN can be NFS mounted.
 - Only one WN needs to be configured.
 - Multiple versions can be used.
 - WN could be deployed as experiment software.
- Re-uses the configuration functions.
 - Same configuration method used.



Application in certification team.

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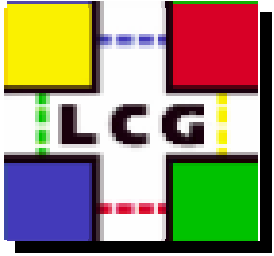
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The Complex Certification Testbed Case



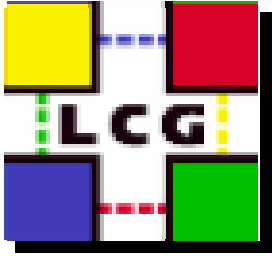
- Our testbed emulates 6 sites.
- Every site has a different configuration.
- Only three different UI / RB /BDII.
- One MON, one Proxy.
- Software are reinstalled every day.



Current Situation



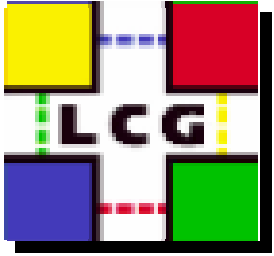
- LCFGng does not work on SL3.
- The sysadmin of a huge center HAS to use LCFGng because porting the manual installation to their local Fabric Management tool takes too long for each release.
- The process from certification to the final release is long due to the creation of the manual installation guide.



Our Immediate Problems with Quattor.



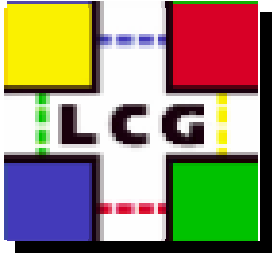
- How can we certify software when Quattor components are not ready for it.
- We can change software versions multiple times per day.
- Who can certify the manual installation if we Quattorize everything ?



Difficulties with certifying a pure manual installation



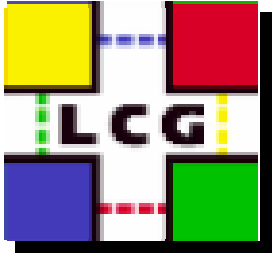
- Certification testbed is around 100 machines.
- Installation of packages without a package manager is a total nightmare.
 - Dependencies on the system can not be easily solved.
 - Too many packages to install
 - Too many commands to run



RPM installation



- To maintain RPM lists we still use the LCFGng format, (#include etc.). This format permits us to manage subsets of RPMs per service.
- RPM lists are all server side
- APT is used for the installation.
- On our web-server we maintain apt-get repositories.
- APT removes the problem of dependancies on system packages.
- It is a simple tool to ensure that packages don't need any to be forced. (--nodeps options).



How do we use manual installation scripts.

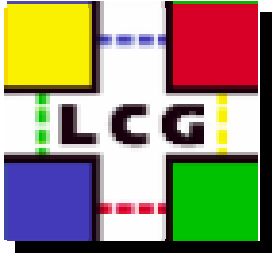


- Our apt repository is recreated whenever we need to test new software. The apt configuration file is available from our web-server.
- We have an install script that executes:
 - get configuration file for apt.
 - update RPM list.
 - install TYPE_OF_NODE-rpm
- We scp/ssh to copy/execute config scripts on the machine.
- An Install.sh Testbedconf is able to do everything,

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opening an terminal per node.



How does it work ?



GD webserver



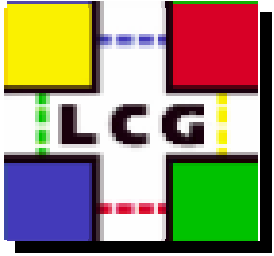
Create your site
configuration file
& Copy your ssh public
in ~/.ssh/authorized
of your nodes cluster



A machine with ssh

The cluster

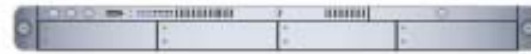




How does it work ?



GD webserver



The cluster



```
scp install_<type_of_node>.sh cluster_node:  
ssh cluster_node ./install_<type_of_node>.sh
```



A machine with ssh



How does it work ?



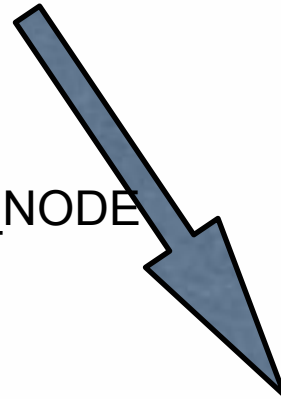
GD webserver



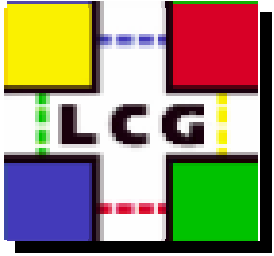
The cluster



Execution of install :
`apt-get install TYPE_OF_NODE`



A machine with ssh



How does it work ?



GD webserver



The cluster

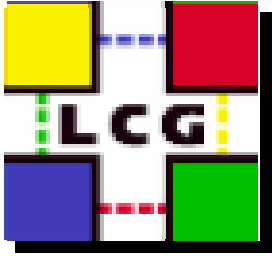


```
scp *.sh Testbed_config cluster_node:/tmp/  
ssh cluster_node /tmp/config_<type_of_node>.sh Testbed_config
```



A machine with ssh

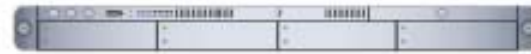




How does it work ?



GD webserver

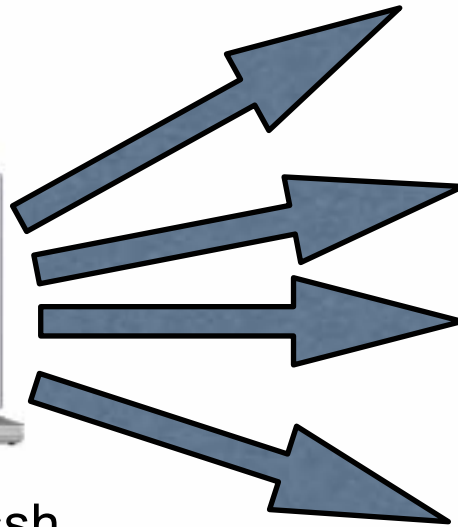


An install.sh script send all install and config script in differents xterm for all the cluster.

```
./Install.sh Testbed_config
```

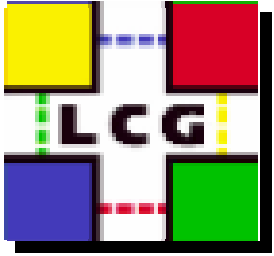


A machine with ssh



The cluster

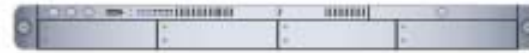




How does it work ?



GD webserver



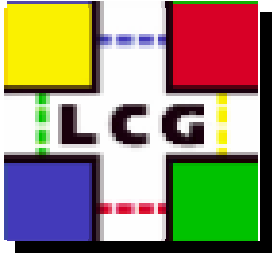
The cluster



It is finish
Cool !



A machine with ssh



Summary



- The manual install is now scripted.
 - Improves efficiency
 - Reduces configuration mistakes.
 - Very easy to use.
- Still a manual install method.
 - Separates installation and configuration.
 - Tuning and tweaking can be done.
- Is OS independent
- Install OS, apt-get rpms, ./configure