



Enabling Grids for  
E-science in Europe

[www.eu-egee.org](http://www.eu-egee.org)

*LCG Workshop, CERN, 2-4 November 2004*

# LCG/EGEE Installation

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EGEE is a project funded by the European Union under contract IST-2003-508833

# Contents

- A Few Words on Quattor
- Quattor Support for LCG-2
- Quattor Installation of gLite

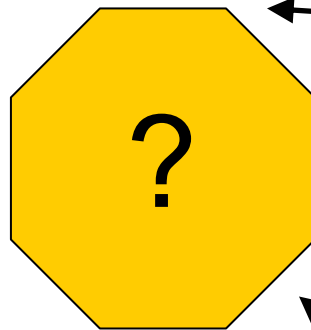
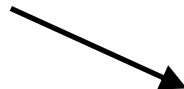


# The Installation Problem

- Installation of large numbers of nodes
- Configuration of large numbers of nodes
- Interchangeability of node functions (or even identities)
- Configuration management
- Allow for site customizations

# Or in pictures

Config & Install  
Server



Grid site

ce



Worker nodes



Software  
Repository

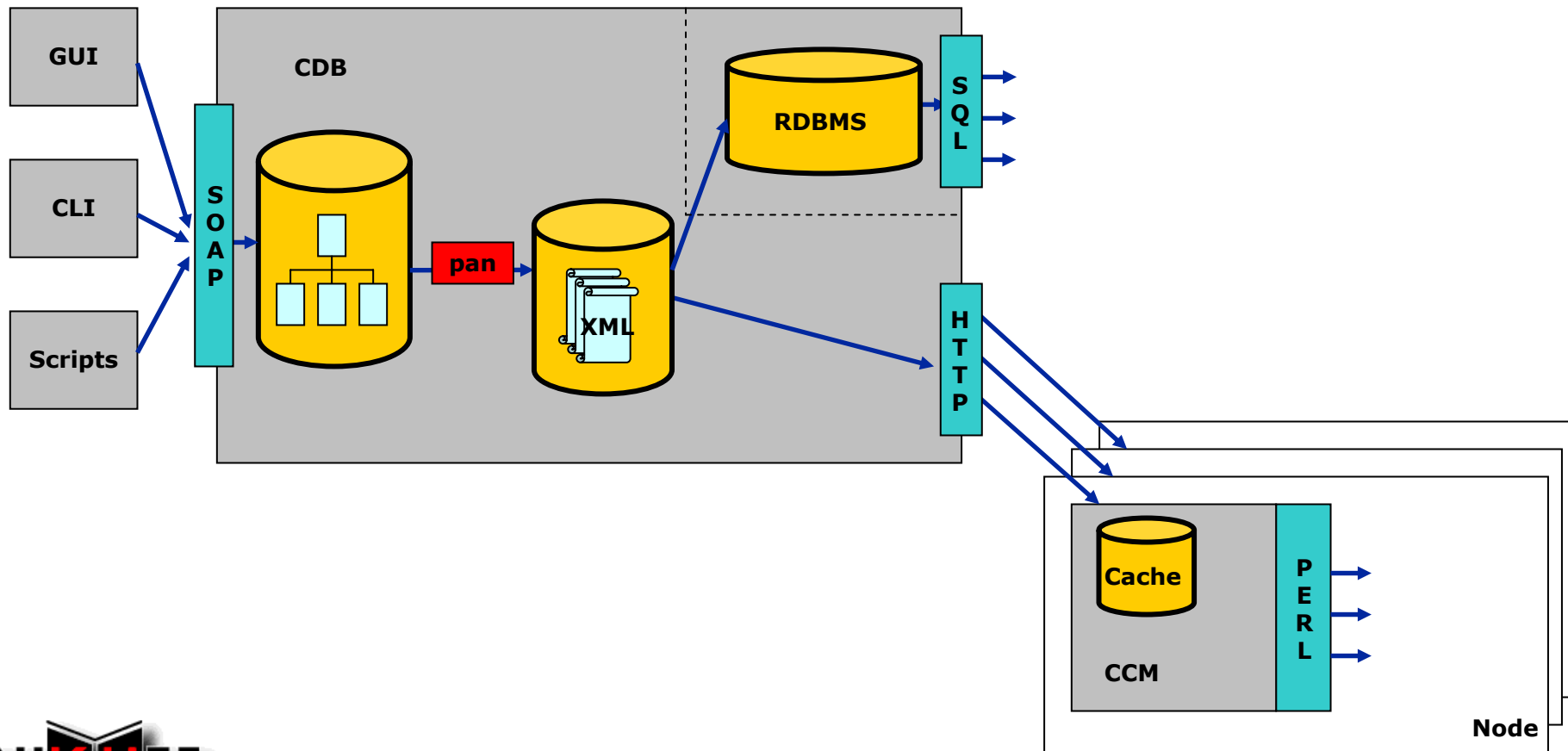


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- Structured Configuration Database
- Structured Software Repository
- Management Tools for Each
- Configuration “components” for various functionality
- Compiler for configuration profiles (handles dependencies)
- Automatic Install System integrated with dhcp

# Configuration Management Infrastructure



# Configuration Database

[INFO] Subtree: /software/components/aix/osinstall

+osinstall

+options

\$ cdb : (string) 'trog.nikhef.nl'

\$ confserver : (string) 'trog.nikhef.nl/'

\$ distserver : (string) 'www.dutchgrid.nl/linux/7.3/en/os/i386/'

\$ firewall : (string) '--disabled'

\$ rootpw : (string) '\$1\$aRNMtjV30'

\$ template : (string) 'rh73\_ks\_pizza0.conf'

[INFO] Subtree: /system/network

+network

\$ domainname : (string) 'nikhef.nl'

\$ hostname : (string) 'tbn03'

+interfaces

+eth0

\$ broadcast : (string) '192.16.186.255'

\$ gateway : (string) '192.16.186.254'

\$ ip : (string) '192.16.186.228'



# Current Solution: LCFGng

- Configuration is a CPP macro

```
#define HOSTNAME                node16-32
#define SITE_LOCALDOMAIN      farmnet.nikhef.nl
#include "local/site-config-lcgprod.h"
#include "local/nikhef-sys-core.h"
#include "local/nikhef-sys-hw-amdncf.h"
#include "local/nikhef-sys-disk-generic.h"
#include "local/nikhef-fs-autofs.h"
#include "local/nikhef-auth-lusers.h"
#include "lcgprod/WorkerNode-cfg.h"
#include "local/nikhef-postconfig-lcgprod.h"
#ifdef SYS_LMSENSORS_SUPPORT
EXTRA(cron.additions) gangliatemp
cron.add_gangliatemp * * * * * /path/prog arg1 arg2 arg3
#endif
+updaterpms.rpmcfg                rpmlist-wnlcgprod
```





# SW Repository Management

```
trog:~> edg-swrep-client listplatforms
```

```
Available platforms:
```

```
test_jeff
```

```
i386_rh73
```

```
trog:~> edg-swrep-client listareas i386_rh73
```

```
Available areas for platform i386_rh73:
```

```
    /base                                0
```

```
    /quattor                             39
```

```
    /updates                              0
```

```
trog:~> edg-swrep-client list i386_rh73
```

```
Platform i386_rh73 contents:
```

```
aia-1.0.2-1.noarch.rpm                 /quattor
```

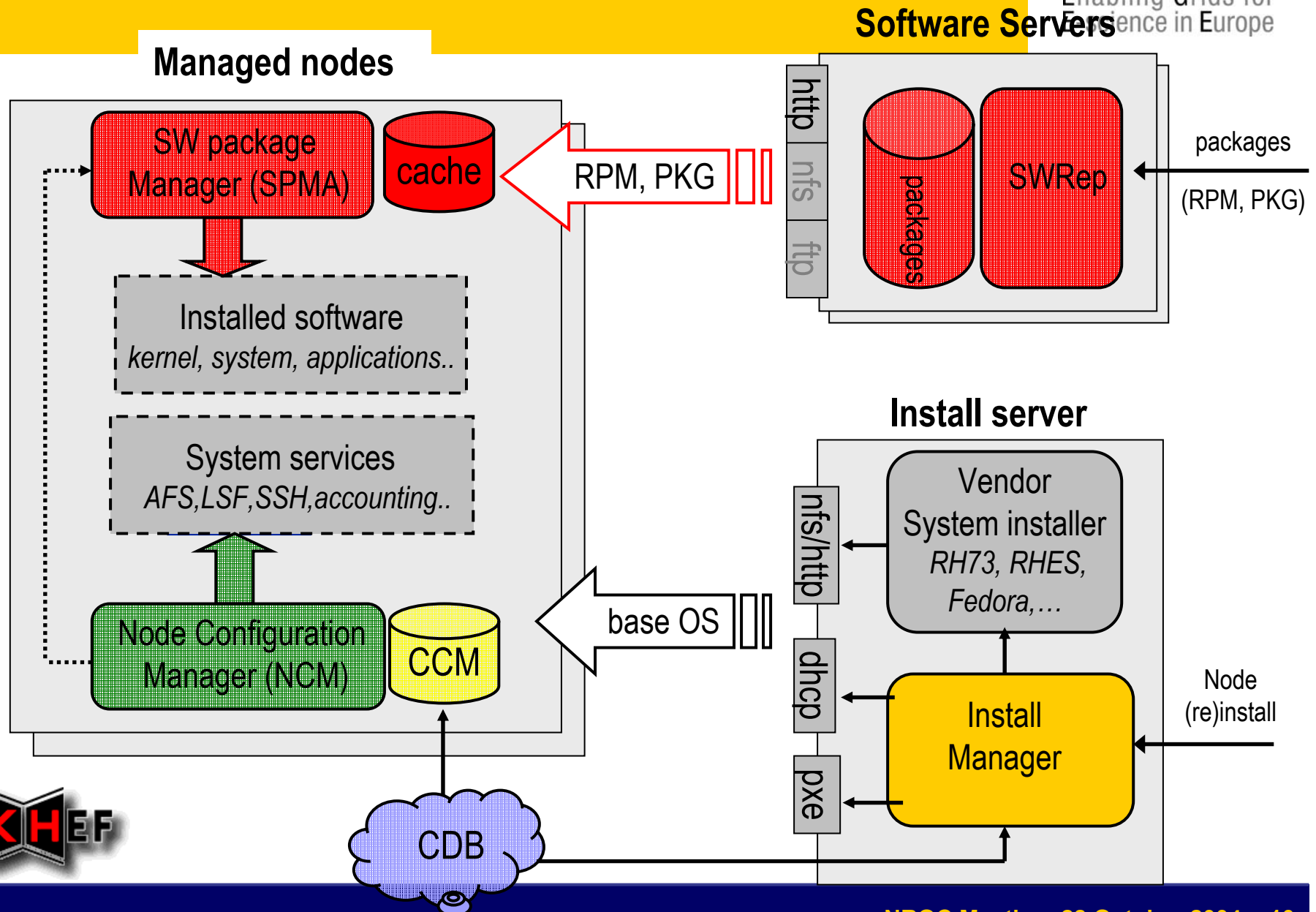
```
aia-client-1.0.2-1.noarch.rpm         /quattor
```

```
cdb-cli-1.8.4-1.noarch.rpm            /quattor
```

```
cdb-simple-cli-1.0.6-1.noarch.rpm     /quattor
```



# Managing (cluster) nodes

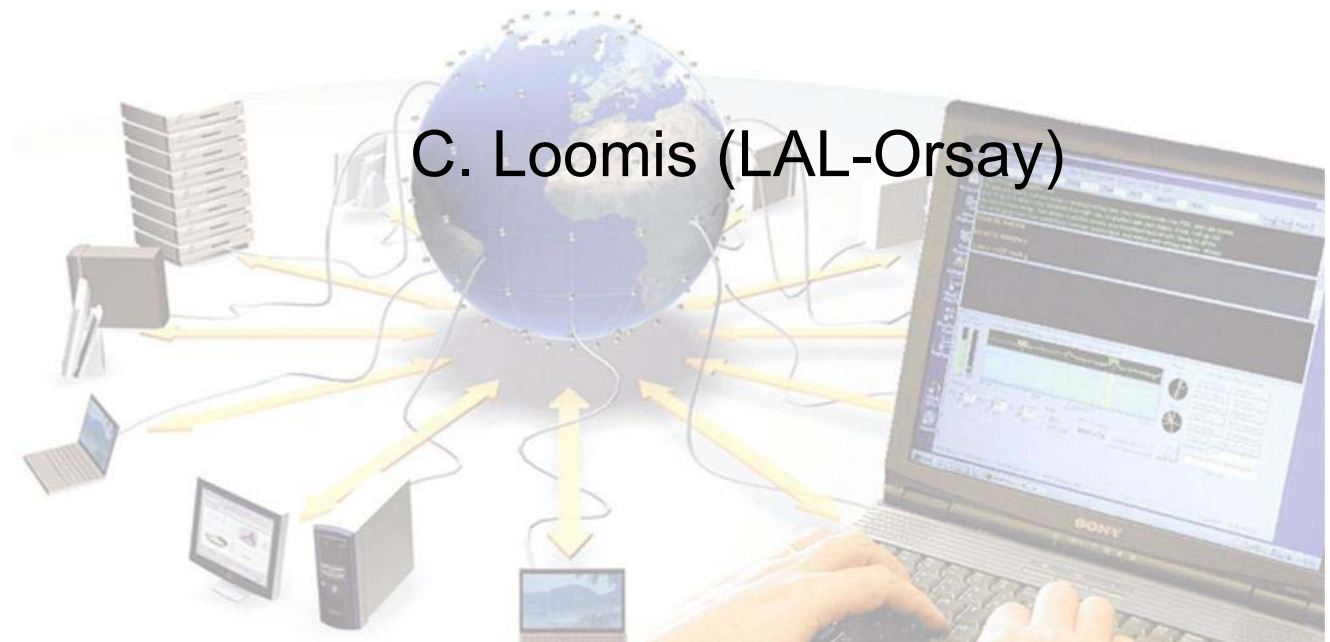


# Assessment

- Installation of large numbers of nodes (looks promising)
- Configuration of large numbers of nodes (looks promising)
- Interchangeability of node functions (looks promising)
- Configuration management
- Allow for site customizations
- **First-time installation**



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C. Loomis (LAL-Orsay)



# LCG-2 Quattor Configuration

- What Works?
  - Quattor
    - Installation
    - Configuration
    - Maintenance
  - Configuration for complete site:
    - CE/WN
    - SE (Classic)
    - RB/BDII
    - UI
    - PX
- What Isn't Available (Yet)?
  - “Obscure” machine types (VOMS, ...)
  - *Fully-automated* grid config. (wasn't in LCFG either...)



# Work To Be Done

- Fully-automatic Configuration
  - Credential distribution
    - Hooks exist
    - Needs proof-of-concept demonstration
  - “Complicated” service configurations:
    - PBS
    - Apache
    - MySQL
- Refactoring of Configuration
  - Generalization (requires feedback)
  - Use quattor features to achieve:
    - More service-oriented config.
    - Less machine-type oriented config.
    - Easier VO integration



# Community Effort

- Interest
  - Most major LCG/EGEE sites
    - CERN, CNAF, NIKHEF, Lyon, RAL, ...
  - Some smaller sites
    - LAL, CPPM, UAM, ...
- Feedback Needed on LCG-2 Configuration
  - Most sites in learning phase for quattor
  - Some using all or part of grid config. in production
    - LAL, CERN, UAM, ...
- Use of Quattor for gLite Services
  - Create configuration components
  - Include in grid services configuration

