EDG 1.4 RPM package installation on DESY Linux 4 (S.u.S.E. 7.2) machines

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Presentation layout

- Introduction
- Comparison of DESY Linux 4 to RedHat 6.2
- An overview of the main installation issues and solutions to the main problems
  - installing packages and satisfying dependecies
  - modifying scripts to start services
- Summary and future plans

Introduction

- DESY - a HEP laboratory in Hamburg, Germany
  - build around the HERA accelerator
  - 4 experiments, about 700 scientists from 31 countries

- Spring 2003 - DESY starts the installation of a grid testbed

- EDG 1.4 has been chosen as the software base

- EDG 1.4 RPM distribution is for RedHat 6.2 only

- DESY is using its own Linux distribution - DESY Linux 4

DESY Linux 4

- DESY Linux 4 is based on SuSE Linux 7.2 professional edition
- Desktop and server machines
- Many applications are shared through AFS
- User accounts are AFS based
- Software versions:
  - kernel 2.4.18
  - glibc 2.2.2
  - RPM 3.0.6.

RedHat 6.2

- RedHat 6.2 is the standard platform for EDG 1.4 RPM distribution
- The RPM's are designed and compiled for this platform
- Some services use RedHat specific scripts and configuration files
- The RPM dependencies rely on many standard RedHat packages
- Software versions:
  - kernel 2.2.24
  - glibc 2.1.3
  - RPM 3.0.5.

RedHat 6.2 vs. DESY Linux 4

- Two options:
  - remove DESY Linux and install RedHat or ...
  - install EDG on top of DESY Linux 4
- RedHat 6.2 would make the installation much easier but ...
  - requires integration with the existing system at DESY
  - this will require a lot of work
- EDG 1.4 binary packages may not work at all with DESY Linux 4 but...
  - if we succeed we have a fully integrated system
  - we can contribute to the EDG community
- Conclusion: installing EDG on DESY Linux 4 is worth a try!

Installation method

- Installation based on the official „EDG 1.4 Installation Guide" and the WP1 „Administrator and User Guide"

- Different installation possibilities

  – LCFG installs a RedHat 6.2 system from scratch

  – LCFG Lite is an option but ...

  – manual installation gives better control on what is going on

  – we need to perform a manual installation first to see what needs to be changed in the LCFG configuration files

EDG packages

- EDG packages can be downloaded from the offical package reposiotry at marianne.in2p3.fr/datagrid/testbed1/repositories/

- Grouped into node type (RB, WN, CE etc ...) and into software group (Globus, CA, EDG etc ...)

- Packages from Globus, CA, EDG, RedHat 6.2 and external were used in our installation
  - packages from the Globus and CA group could be installed easily on our system
  - packages from EDG group return many dependency errors

Dependency errors I

- Some pacages report missing dependencies on libraries which are on the system:

  libcrypto.so.0 is needed by openldap-ftree-2.0.18ft1.0.0pre3-1

  libssl.so.0 is needed by openldap-ftree-2.0.18ft1.0.0pre3-1

- Such dependency errors can be safely ignored

- A different version string format was the reason of perl package dependency problems

  - perl 5.6.0 is installed, perl >= 5.00503 is required

  - dependency fails because 6 < 00503

  - for some packages files are placed in wrong directories

  - optimal solution is to rebuild these packages

Dependency errors II

- Dependecy on initscripts
  - initscrpits package contains RedHat specific stuff which is incompatible with what comes with SuSE
  - some workarounds are necesary
- Dependency on egcs
  - conflicts with gcc installation
  - can not be satisfied without major modifications to the system
  - may result with incompatibilities with binaries compiled on grid nodes using egcs

Dependency errors III

- AFS specific problems
  - perl installation is on *usr/local* which is an AFS partition
  - perl packages can not be installed locally
- Some dependencies can be fulfilled by installing standard SuSE packages
- Dependencies on other packages from the RedHat 6.2 and External groups can be fulfilled simply by installing these packages

The initscripts package I

- Contains functions used to start services
  - the *daemon* function from */etc/init.d/functions* is used to start services, it calls */sbin/initlog*
  - */sbin/initlog* starts a process and logs its output, it is also used to log single messages
- These functions don't work on SuSE and need to be replaced
  - calls to *daemon* can be replaced with */sbin/startproc*
  - */sbin/initlog* when *daemon* is replaced is used only for logging single messages
  - its behavior can be mimicked by a simple script

The initscripts package II

- initscripts comes also with a set of configuration files

- */etc/sysconfig/network* is used by some EDG scripts

- It contains five lines:
  ```
  NETWORKING=yes
  HOSTNAME=grid007.desy.de
  GATEWAY=131.169.223.16
  GATEWAYDEV=eth0
  NISDOMAIN=desy.de
  ```

- It can be easily created for a given machine

AFS related problems

- AFS user accounts

  - on DESY Linux users have AFS accounts and home directories

  - the *~/.globus* can not be accessed when it is on AFS

  - the simplest solution is to make it a link to a directory local on the machine

- Starting condor_master (on a RB node only)

  - crashes with segmentation fault on startup

  - the reason are AFS entries in the */etc/passwd* file starting with *+@*

  - these entries need to be commented out

Other problems

- Different way of adding entries to the crontab
- Different way of adding services to init.d
- Conflicts with standard Open LDAP installation on RC
  - gsi authentication did not work

Summary

Current status

- A complete testbed
  - CE, WN, 2x SE, RC, RB, BDII, UI
- Test which have been performed
  - using the UI for access to our local testbed as well as testbeds outside DESY
  - using the RB for job submission on our local testbed
  - using the SE and RC to store and replicate files on our local testbed

Summary

- The testbed installation was a success

- All problems so far have been caused by mistakes in configuration or installation procedures

- No signs of errors related to binaries incompatibility

- A step-by-step installation guide can be found here: http://www-it.desy.de/physics/projects/grid/

Conclusion and future plans

- It is possible to install EDG binaries on top of an existing, 'non-RedHat' system

- No major modification to the system or to EDG packages are necessary

- Future Plans:

    - installing EDG 2.0 (should be now easier)

    - using LCFG Lite in order to simplify the installation procedure

    - running Monte Carlo production for HERA experiments on the Grid

    - joining the EGEE project is being considered

The End