Worker Node installation & configuration

Giuseppe Platania
INFN Catania
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OVERVIEW

- The **Worker Node** is a service where the jobs run.

- Its main functionally are:
  - execute the jobs
  - update to Computing Element the status of the jobs

- It can run several kinds of client batch system:
  - Torque
  - LSF

TORQUE client

- The **Torque client** is composed by a:
  - ***pbs_mom*** which places the job into execution. It is also responsible for returning the job's output to the user

Worker Node installation & configuration using YAIM

INSTALLATION: JAVA SDK

- Because of SUN licence used for Java SDK, it is not possible to redistribute it with the middleware.
- You have to download Java SDK 1.4.2 from Sun web site: http://java.sun.com/j2se/1.4.2/download.html
- Select ``Download J2SE SDK", and download the ``RPM in self-extracting file". Follow the instruction on the pages to extract the rpm.

INSTALLATION: glite/gilda yaim

- **Download and install latest version of glite-yaim-3.0.0 -* on all your grid nodes:**

  http://glitesoft.cern.ch/EGEE/gLite/APT/R3.0/rhel30/RPMS.Release3.0/

- **Download and install the latest version of gilda_ig-yaim-3.0.0 -* on all your grid nodes:**

  http://grid018.ct.infn.it/apt/gilda_app-i386/utils

INSTALLATION: glite/gilda yaim

- Copy gilda_ig-site-info.def template file provided by gilda_ig_yaim in to the root dir and customize it

```
cp /opt/glite/yaim/examples/gilda_ig-site-info.def  \
/root/my-site-info.def
```

- Open `/root/my-site-info.def` file using a text editor and set the following values according to your grid environment:

```
MY_DOMAIN=<your DOMAIN>
NTP_HOSTS="193.206.144.10"
```

Customize gilda_ig-site-info.def

- **Set the repositories:**

```
INSTALL_SERVER_HOST=training50d.$MY_DOMAIN
OS_REPOSITORY="rpm http://$INSTALL_SERVER_HOST slc306-i386 os
   updates extras localrpms"
LCG_REPOSITORY="rpm http://$INSTALL_SERVER_HOST glite_sl3-
   i386 3_0_0 3_0_0_externals 3_0_0_updates"
IG_REPOSITORY="rpm http://$INSTALL_SERVER_HOST ig_sl3-i386
   3_0_0 utils“
GILDA_REPOSITORY="rpm http://$INSTALL_SERVER_HOST gilda_app-
   i386 app 3_0_0"
CA_REPOSITORY="rpm  http://$INSTALL_SERVER_HOST glite_sl3-
   i386 security"
```

Customize gilda_ig-site-info.def

```
JAVA_LOCATION="/usr/java/j2sdk1.4.2_12“

JOB_MANAGER=lcgpbs
BATCH_BIN_DIR=/usr/bin
BATCH_VERSION=torque-1.0.1b
VOS=“write here the VOs you want to support”
ALL_VOMS=“write here the VOs supported that have a VOMS”

QUEUES="short long infinite"
```

Customize gilda_ig-site-info.def

```
WN_LIST=/opt/glite/yaim/examples/gilda_wn-list.conf
```

The file written in WN_LIST has to be set with the list of all your WNs's hostname.

WARNING: It's important to setup it before to run the configure command

WHAT KIND OF WN?

There are several kind of metapackages to install:

GILDA_ig_WN
- ``Generic'' WorkerNode.

GILDA_ig_WN_noafs
- Like ig_WN but without AFS.

GILDA_ig_WN_LSF
- LSF WorkerNode. IMPORTANT: provided for consistency, it does not install LSF softwarebut it apply some fixes via ig_configure_node.

GILDA_ig_WN_LSF_noafs
- Like ig_WN_LSF but without AFS.

GILDA_ig_WN_torque
- Torque WorkerNode.

GILDA_ig_WN_torque_noafs
- Like GILDA_ig_WN_torque but without AFS.

BDII Installation

- This command will download and install all the needed packages:

```
/opt/glite/bin/gilda_ig_install_node /root/my-site-
info.def GILDA_ig_WN_torque_noafs
```

- Now we can configure the node:

```
/opt/glite/bin/gilda_ig_configure_node /root/my-
site-info.def GILDA_ig_WN_torque_noafs
```

Worker Node testing

Testing

- **Verify if the pbs_mom is active and if its status is free:**

```
[root@wn root]# /etc/init.d/pbs_mom status
pbs_mom (pid 3692) is running...

[root@wn root]# pbsnodes -a
wn.localdomain
  state = free
  np = 2
  properties = lcgpro
  ntype = cluster
  status = arch=linux,uname=Linux wn.localdomain 2.4.21-37.EL.cern 1
   Tue Oct 4 16:45:05 CEST 2005 i686,sessions=5892 5910 563 1703
   2649,3584,nsessions=6,nusers=1,idletime=1569,totmem=254024kb,avail
   mem=69852kb,physmem=254024kb,ncpus=1,loadave=0.30,rectime=11590161
   11
```

Testing

- First of all, check if a generic user on WN can do ssh to the CE without type the password:

```
[root@wn root] su - gilda003
[gilda003@wn gilda003] ssh ce
[gilda003@ce gilda003]
```

- The same test has to be executed between the WNs in order to run MPI jobs:

```
[gilda003@wn gilda003] ssh wn1
[gilda003@wn1 gilda003]
```

FIREWALL setup

/etc/sysconfig/iptables

```
*filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [0:0]
:RH-Firewall-1-INPUT - [0:0]
-A INPUT -j RH-Firewall-1-INPUT
-A FORWARD -j RH-Firewall-1-INPUT
-A RH-Firewall-1-INPUT -i lo -j ACCEPT
-A RH-Firewall-1-INPUT -p icmp --icmp-type any -j ACCEPT
-A RH-Firewall-1-INPUT -m state --state ESTABLISHED,RELATED -j ACCEPT
-A RH-Firewall-1-INPUT -p all -s <your_CE_ip_address> -j ACCEPT
-A RH-Firewall-1-INPUT -j REJECT --reject-with icmp-host-prohibited
COMMIT
```

iptables startup

```
/sbin/chkconfig iptables on

/etc/init.d/iptables start
```

Troubleshooting

Troubleshooting

```
[root@wn root]# su - gilda001
[gilda001@wn gilda001] ssh ce
gilda001@ce's password:
```

probably there isn't the wn's hostname in /etc/ssh/shosts.equiv or the wn's ssh keys isn't in /etc/ssh/ssh_known_hosts

Solution:

- Ensure that the wn is in pbs list using:

```
[root@ce root]# pbsnodes -a
```

- And then:

```
[root@ce root]# /opt/edg/sbin/edg-pbs-shostsequiv
[root@wn root]# /opt/edg/sbin/edg-pbs-known-hosts
```

Troubleshooting

```
[root@wn root]# pbsnodes -a
wn.localdomain
   state = down
   np = 2
   properties = lcgpro
   ntype = cluster
```

Solution:

```
[root@wn root]# /etc/init.d/pbs_mom start
```