Sophia C++

How to run the code (on g5k)

Let `$nodes` be a file containing the list of nodes to be used, 1 per line (e.g., ~/nodes).
Let `$SOPHIA_HOME` be the local path to the sophiac++ directory (in sophia dir; e.g. `/home/login/sophia/sophiac++`).
You need to be able to login to all the nodes via ssh without any password. For the second command of step 4, you need to be able to login to all the nodes as root.

Executer (depuis le frontend): set_hostname.sh

Se logguer sur un des noeuds et faire :

1. $ export nodes=~/nodes
2. Si le code n'est pas présent, faire :
    - `$ svn co https://proton.inrialpes.fr/svn/aublin/sophia/`
3. $ export SOPHIA_HOME=~/sophia/sophiac++
2. Compile Cryptopp:
   ```
   $ cd $SOPHIA_HOME/../cryptopp562
   $ make
   ```
3. Compile Sophia:
   ```
   $ cd $SOPHIA_HOME/src
   $ make
   ```
4. Configure /etc/hosts of the nodes so that Sophia's scripts can know the list of nodes you use:
   ```
   $  while read line; do ADDR=$(nslookup $line | grep -A1 '^Name'
   | tail -n 1 | awk '{print $2}'); HOST=$line; CHOST=$(echo $line
   | sed 's/^\(.\+\)\..\+\.grid5000\.fr/\1/'); echo -e
   "$ADDR\t$HOST\t$CHOST"; done < ~/nodes | sudo tee -a /etc/hosts
   $ while read line; do scp /etc/hosts root@$line:/etc/; done <
   $nodes
   ```
4. Modify the system configuration of the nodes:
   ```
   $ while read line; do ssh -n $line "sudo sysctl -p
   $SOPHIA_HOME/scripts/sysctl.conf"; done < $nodes
   ```
5. Create Sophia's nodes configuration:
   ```
   $ cd $SOPHIA_HOME/config_private
   $ vim gen_conf.pl
   ```
   you need to list the replicas hostname (resp. ip address) in `@replicas` (resp. `@replicas_ip`) and the clients hostname (resp. ip address) in `@clients` (resp. `@clients_ip`).

```
$ perl gen_conf.pl -f 1 -rep 4 -cli <numClientMachines>
-numclients <numClients> -pki -sg
$ while read line; do HOST=$line; CHOST=$(echo $line | sed
's/^\(.\+\)\..\+\.grid5000\.fr/\1/'); ln -s $HOST $CHOST; ln -s
$CHOST $HOST; done < $nodes
```

5. Modify Sophia's scripts:
   `$ cd $SOPHIA_HOME/scripts`
   - **kill.sh** and **ring_options.conf**: `NODENAMES_REGEX` must contain an expression to find the name of the nodes (e.g., *granduc* for nodes on Luxembourg cluster).
   - **rsync_compile.sh**: `MACHINES` must contain the list of all the nodes you use (the same one as in `$nodes`)
   - ring_options.conf:
     - `MASTER_NAME`:the name of the node on which you run the manager
     - `MASTER_LOGIN_NAME`: login to connect to the master node
     - `LOGIN_NAME`: login to connect to the other nodes
     - `LIMIT_THROUGHPUT`: maximal throughput at which the clients send their requests (it is divided by the number of clients, to limit the global throughput), in req/s.
     - `NUM_BURSTS`: number of bursts of the experiment
     - `NUM_MESSAGES_PER_BURST`: number of messages each client sends in a burst
     - `HOME_DIR`: value of `$SOPHIA_HOME`
     - `SERVER_EXEC`: name of the server executable. The default value is *server*. You can set *server.gdb* to run the server under gdb.
6. Send the configuration to all the nodes, and compile Sophia on all the nodes:
   ```
   $ cd $SOPHIA_HOME/scripts
   $ ./rsync_compile.sh clean
   ```
7. Launch the experiment
   ```
   $ cd $SOPHIA_HOME/scripts
   $ ./launch_ring.sh <nb_clients>
   ```
8. The result of the experiment is displayed in the terminal, and in the file *~/times/experiments.out* . The output of the replicas is redirected in the */tmp/server.<hostname>.out* files.

There is already an image configured with Sophia on g5k, on Sophia site:

```
$ cd /home/paublin/old_images/
$ ls *sophia*
squeeze-x64-sophia.dsc3  squeeze-x64-sophia.tgz
```

If you use it, then you can skip some steps (svn co and compilation). However, do not forget to `svn up`. The login (and password) on this image is *bft*.