Running Mbta on the GRID: first experiments

GMG (with a lot of help from Alberto)

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- **Purpose**: to analyze CBC MDC data with injections.

- **Preparation**:
  - Compile Mbta static at Cascina.
  - Transfer the code at Cnaf.
  - Transfer and pubblish the necessary data on the grid.
  - Implement the necessary jdl and input file to be ran at Cnaf.

- Here is an example of **jdl file** with the code and the configuration file in the InputSandbox:

```
Type="Job";
JobType="Normal";
VirtualOrganisation = "virgo";
RetryCount = 3;
StdOutput="std.out";
StdError="std.err";
OutputSandbox={"std.out","std.err"};

//Requirements = RegExp ("cnaf.infn.it",other.GlueCEUniqueId) |R egExp("roma1.infn.it",
                                                                    other.GlueCEUniqueId)
//Requirements = other.GlueCEUniqueID == "virgo-ce.roma1.infn.it:8443/cream-pbs-virgoglong";
Requirements = RegExp ("cnaf.infn.it",other.GlueCEUniqueId);

Executable="inputs-grid_967700000.sh";

InputSandbox={"/home/VIRGO/guidi/MDC/V1-SetLarge3/inputs_files/inputs-grid_967700000.sh",
"/home/VIRGO/guidi/MDC/V1SetLarge3/cfg_files/MbtaV1A_967700000.cfg",
"/opt/exp_software/virgo/virgoDev/mbtaRT/v0r79-v1r71/MbtaRT"};

Arguments="MbtaV1A_967700000.cfg";
```

- To transfer the code and the input/output data in/from other virgo woms computing centers, we used standard lcg commands. Here is an example of **input file**:

```
#!/bin/sh
export LFC_HOST=lfcserver.cnaf.infn.it
export LFC_HOME=/grid/virgo/

lcg-cp lfn:/grid/virgo/CBC/CBC-MDC/V-EARLY_GAUSSIAN/compressed_4R/V-EARLY_GAUSSIAN-967700000-100000.gwf file:`pwd`/V-EARLY_GAUSSIAN-967700000-100000.gwf

lcg-cp lfn:/grid/virgo/CBC/CBC-MDC/V-EARLY_GAUSSIAN_INJ_Set_LARGE_N_3/S100000/V-EARLY_GAUSSIAN_INJ_Set_LARGE_N_3-967700000-100000.gwf
 file:`pwd`/V-EARLY_GAUSSIAN_INJ_Set_LARGE_N_3-967700000-100000.gwf

chmod +x MbtaRT

./MbtaRT $1

output=`ls M*.gwf`

lcg-cr -d storm-fe-archive.cr.cnaf.infn.it -l /grid/virgo/test/$output file:`pwd`/$output
```

- *Is there exist another easier way to do?*

- To create multiple jobs, we used shell scripts able to divide the several analysis time lags (100000s) and several chirp-mass ranges.
- It results, for the filtering of 2 months data, in 2028 jobs.
- To submit the jobs, we used the possibility to create *collections* of jobs. Each collection have all the jdl files in a directory.

- To retrive the std output, control the status and the virgo sites we make use of the glite commands:
  - Glite-wms-job-output
  - Glite-wms-job-status
  - lcg-infosites --vo virgo ce

The main problem with these commands is that they are not friendly when you have to control a lot of jobs in computing sites different from the one you are using – cnaf in our case.