CW
Computing workshop
28/11/19

Some notes

- SFDB (FFT) and p10(peakmaps):
  - generated from gwf files and divided in 4 different databases (band of frequency: 128 256 512 1024 Hz):
  - only 4 jobs for single interferometer
  - each jobs read all files that need for creating its database (even all files of the run!)
  - So we have 12 jobs (4 jobs * 3 interferometers)
  - tooks near a week for analysing 6 months of data in a dual core machine
  - source code is Matlab compiled (with the core routine in C)
  - limited by IO
  - Higher freq require greater memory
  - ~ 500 files per interferometer
  - needed for all cw analysis not only for the "all-sky"

Starting from this point the time spent in reading files become negligible compared with the analysis time

- HFDB input:
  - putting together selected frequency and sky information
  - 500 jobs took ~ 12 hr on dual core
  - source code is Matlab compiled (with the core routine in C)

Now the real long part (and where each job read a single file)

- Frequency Hough:
  - the heavy one (months)
  - number of jobs per interferometer and per frequency band is:
  - 3072 in the first band, 8407 for second band, 14629 for third band, 29102 for fourth band
  - In O2 there are 4 intervals
  - And per spin down range
  - jobs of different duration, between hours and days (even 4-5) if consider dual-core
  - Source code should be matlab and python
  - Iuri's 'porting on gpu
- Coincidence:
  - ram limited
  - 1 job per Hz for cluster or coincidences (for each couple of interferometers)

Job

- Submitted using CE
- No complex dependencies among jobs
  - Dag not needed
- Read file(s) from filesystem/gfal
  - Easier from fs
- Write using gfal/storm
  - Need a valid proxy
- More than 1 day
  - Proxy renewal
  - ...Problem with condor
- Requested: to use different cc
  - Easily and transparent
- Proxy ~ 48 hr
  - Security purpose
  - manual renewal
- All files in a single cc
  - Manual copy
- What files export:
  - Probably hfdb (sfdb)
  - Executable and Matlab runtime
- How to export:
  - Cvmfs?
  - Rucio?