Minutes of the FCC software informal meeting, 24 April 2014, 1:00pm
Presents: Andrea D, Andrea V, Benedikt, Carlos, Colin, Patrick
Action items in

Various news (all):
- Simulaion developments: A young Austrian student starting her diploma thesis might be available from August 2014 onwards for possibly up to four years, and work on the development of a flexible simulation framework (with part of the detectors undergoing a full simulation, some others a fast simulation, and some others a parametric simulation, in a configurable manner).
- Lucie Linssen has invited one of us to the CLICdp collaboration meeting (http://indico.cern.ch/event/314222/) on 11-12 June 2014, to present the developments on the FCC software side. It was agreed to send a speaker (tba) to their meeting.
- There will be no FCC software meeting next Thursday (1 May). Next meeting is scheduled on 8 May, 1pm.
- The DELPHES tutorial will also take place on 8 May in room 160-1-009, from 9am to noon. See the indico page with the abstract, and register: https://indico.cern.ch/event/315979/

Framework developments (Benedikt):
- A work-around to make DD4HEP and GEANT compile together will be made available this Saturday. Andrea D. suggested to also check whether the newest GEANT4 version would solve the dependencies issues automatically. He definitely welcomes the work-around to start doing something constructive as soon as possible.
- There was a new release of GaudiHive, the basis of our software framework (http://concurrency.web.cern.ch/GaudiHive). Working examples will be provided soon, starting from a generator (which delivers particles in the HEPMC format), storing the produced particles with a modified version of LCIO (based on Root and Reflex dictionaries for particle collections, as in CMS), reading back these particles with LCIO, and manipulating them to make simple plots. **It is now a question of weeks before we get such an example.**
- **Andrea promised to work 30% of his time in the next two weeks to make things progress, under Benedikt guidance**.
- As soon as a working example is ready, **Colin will adapt his CMS python analysis framework** (based on pyroot, with configuration, module scheduling, reading and writing capabilities). He has already extracted the code from the CMS environment, and would just need a way to read the events from the Root files in python (like FWLite does in CMS). Benedikt knows how to do that: an autoloader and reflex dictionaries are probably all what is needed. Colin will provide Benedikt with a pointer to his code to this effect. It was agreed to use python 2.7, and to add useful auxiliary package like numpy, scipy, scikit-learn. **Colin will propose versions for the various packages to Benedikt**.
- **Benedikt has still an open item on Git, which he will work on in the coming days.**

<u>Resources</u> (Andrea V):

- Andrea went ahead with a request for resources to submit 500-100 batch jobs in parallel, as well as 100 cores of interactive virtual machines, and 200 TBytes of storage space. Bernd Panzer answered that he would need a more official request, possibly with some ideas of the possible growth rate in the next 2-3 years. **Fabiola and Patrick will proceed with the official request.** Andrea hinted at the fact that the most sensitive request was the possibility of submitting 1000 jobs in parallel.
- Andrea also requested to register the FCC VO in the CERN VOMS. (See https://cern.service-now.com/service-portal/view-request.do?n=RQF0326085 for the status of this request.) As agreed last time, the VO managers are Andrea (main), plus Fabiola and Patrick as deputies. The mailing list is fcc-vo-admin@cern.ch.
- Andrea confirmed the possibility of a user to belong to several VO's (e.g., ATLAS and FCC), as long as it is not ATLAS and CMS together.
- A discussion started on the grid and the resources to be provided by external institutes. We concluded that we were not yet at the level of giving a recommendation on this aspect, as most of the FCC contributors are from CERN for the time being.
- An important issue will be the data book-keeping system. Andrea will seek advice from IT on the relative merits of the existing tools (from CMS, ATLAS, LHCb) and come back with a suggestion. Eventually we might want to develop something much more simple (with a database containing, for each dataset, the name of the files, the number of events and the configuration under which the events were generated), with transparent access for the users. Such a development might be used as an incentive to attract interested developers. (See for example the presentation of Emilio Meschi at the FCC-hh meeting devoted to software developments).
- **Andrea promised to create a FCC twiki entry for next week.**

<u>DD4HEP</u> (Carlos):
Carlos improved his cylinder of last week. He was able to add layers, cells, etc. and is now at the point where particles can be sent through the detector material. The overall impression so far with DD4HEP is very positive. Pile-up merging looks trivial to implement, as all cells are identifies with a unique key. Carlos is now eagerly awaiting the interface with GEANT and the working example from Benedikt (with voluntary contributions from Andrea D.)

Next meeting:
Thursday 8 May, 1pm-2pm (kept flexible, in case the DELPHES tutorial takes longer than originally scheduled).

Next Events (where software progress will have to be presented):
FCC-ee physics coordination meeting: 30 April, 10:30am
DELPHES Tutorial: 8 May, 9am
FCC-hh physics workshop: 26-28 May
FCC-ee physics workshop: 19-21 Juin