Simulation Session

Atlas Software Week

11 May, 2000 @LBL

Agenda 11th May, 2000

14:00	Introduction	Katsuya Amako
14:10	EM barrel status	Mikhail Leltchouk
14:40	HEC and FCal status	Rachid Mazini
15:10	TRT test beam simulation with G4	Dario Barberis
15:30	Coffee Break	
16:00	Management of G3 geometry	Gilbert Poulard
16:20	Requirements from the trigger performance studies	Traudl Hansl-Kozanecki
16:40	Discussion session - Future organization of activities	

1) design and implementation of the simulation framework
2) integration of all subsystem detectors
3) Geant4 comparison with test beam data
4) meetings and workshops

[Note]

- Need to stop by 17:30 (Reception is scheduled).

Discussion Session

- **Three major simulation tasks in 2000**
  1. To design and to implement the full simulation framework.
  2. To start to integrate subsystem detectors to the full simulation framework.
  3. To study the validity of G4 physics processes related to the Atlas detector.

Issues to be discussed in this session:

- ***How to proceed?***

Full Simulation Framework - 1

- **Fundamental boundary conditions for the design**
  - To use the Geant4 toolkit
  - To integrate into the Atlas common framework
- **Top priority issues for the design**
  - Design of detector description.
  - Design of hits and digi (raw data) classes.
  - Design of monte-carlo truth class and its association to hits/digi.

➔ Once these designs have been established, the design of the full simulation framework is relatively straightforward.

Full Simulation Framework - 2

- **Design of detector description**

  What we learned from Stan Bentvelsen's talk yesterday:

  - AGDD/XML is the baseline
  - The subsystem software coordinators have responsibility to provide an application neutral detector description.

  Issues to be clarified:

  - Who has responsibility to provide the simulation specific detector description for each subsystem?

    ➔A natural answer is by the subsystem simulation coordinators, but better to be clarified.
  - What is the time schedule?

Full Simulation Framework - 3

- **Design of hits and digi (raw data) classes**

  What we learned from RD Schaffer's talk yesterday:

  - A complete proposal for G4 hits/digi will be by the end of June.
  - The database group has responsibility of the design.

  Also this design work depends upon the design of the "event model". According to David Quarrie's talk yesterday:

  - The 1st workshop on event model on 31st May.
  - A preliminary design of event model by September.

  Issues to be clarified:

  - When the design filnalized?

Full Simulation Framework - 4

- **Design of MC truth class and its association to hits/digi**
  - For this design, we need to discuss with event reconstruction people and also with the event generator group.

Again this design work depends upon the design of the “event model”. According to David Quarrie’s talk yesterday:

- The 1st workshop on event model on 31st May.
- A preliminary design of event model by September.

Issues to be clarified:

- How to interact among each other?
  - ➔ At CSG meeting?

Given time schedule and milestones

- **According to Norman McCubbin and David Quarrie, the global time schedule and milestone related to full simulation work are**
  - June 2001
    - Integration to Atlas Common Framework
    - Mock Data Challenge 0
  - January 2002
    - Mock Data Challenge 1
  - 2003
    - Mock Data Challenge 2

A proposal: Time schedule for design and test implementation of the full simulation framework

Time schedule is very much dependent upon the progress of design works in previous slides - suppose all designs will be finalized by September.

The following is a very very preliminary proposal for a global time schedule.

➔Need to discuss with all subsystem simulation coordinators.

Workflow	Period (tentative!!)
Requirement gathering (write use-cases)	June ---> September
OOA/OOD (1st iteration)	June ---> September
Test implementation (1st iteration) (integration of several detectors)	October ---> November

Integration of subsystem detectors

Suppose the 1st iteration of design/implementation goes as scheduled, then the schedule for integrating subsystem detectors will be

- January ---> June 2001 (Mock Data Challenge #0)

G4 comparison works

We are going to discuss more details about this in the meeting on18th May.

Meetings and Workshops

- **Need to have a regular simulation meeting**
  - How often?
  - Who participates?

- **Workshop**
  - Proposed in October 2000
    - Major topics - G4 comparison
    - Problem - may conflicts with other schedules
      - G4 International Workshop already scheduled in Oct.
      - Monte Carlo 2000 at Lisbon in Oct.
      - Calor 2000 at Annecy in Oct.
  - Schedule of further workshop?