

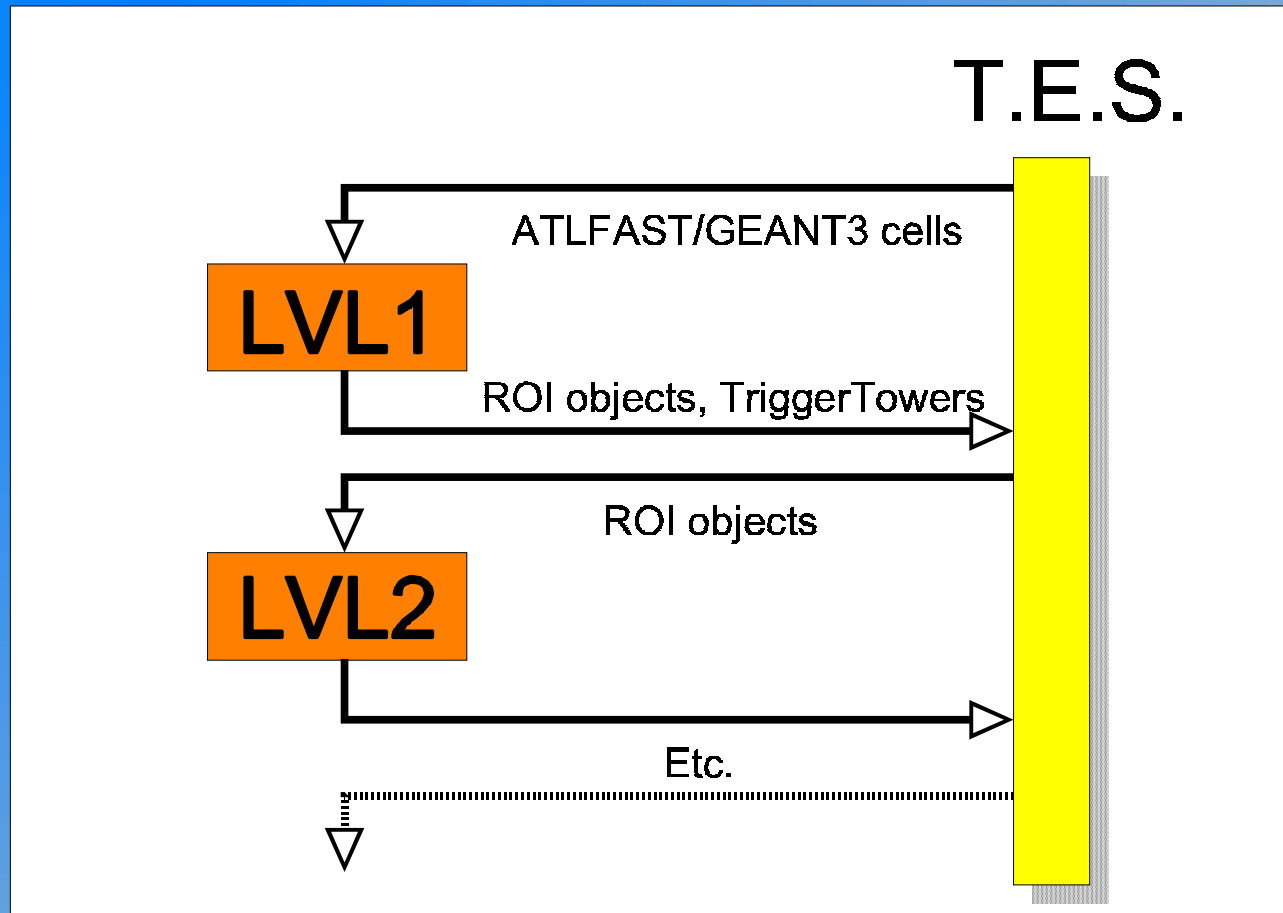
Trigger simulation in Athena

- Overview of Athena
- Structure of new Atrig
- Algorithm implementation
- Timescale
- ROI definition
- ATLFAST in Athena

Athena Overview

- Athena is new offline software framework.
 - ▶ Preliminary release as of May.
- Advantages of a framework approach:
 - ▶ Insulates physicists/users from technical details of computing
- All software written derives from base classes:
 - DataObject, Algorithm, Converter
- Algorithms use Services to perform tasks:
 - Transient Event Store (holds temp. information)
 - Histogram service etc.

Structure of Atrig



Algorithm

- 1. Loop over eta, phi and form ROI candidate.
 - Is ROI core $\sum E_T > 0$?
 - If no then delete,
 - If yes then keep and put pointer to object in a list
- 2. Loop over this list
 - Is ROI_candidate local E_T max?
 - If no then set delete bit
- 3. Loop over ROI Candidate list
 - delete non E_T max ROI candidates.... (i.e. those with delete bits set)
- 4. Loop over ROI Candidate list
 - Tell ROI candidate to apply algorithms and ask if it passes
 - If no then delete
 - If yes then set bits specifying it is now an ROI

Timescale

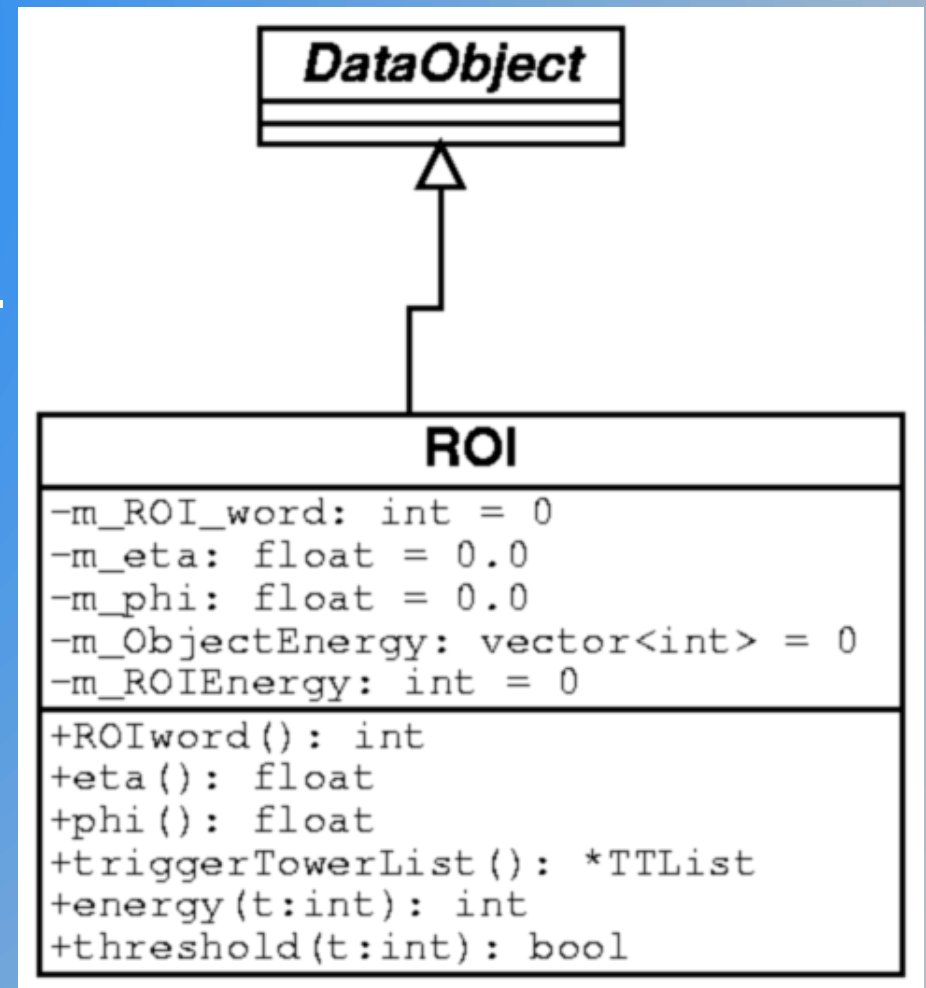
- Use 3 month minor cycles and 1 year major cycles
- Detailed plan is shown on Simon George's page
(<http://www.hep.ph.rhbnc.ac.uk/atlas/newsw/>)
- ... but concentrates on LVL2.

TimeScale(2)

- 1st cycle (Sept 00 - Nov 00)
 - ▶ Build on experience, ideas, prototypes and examples produced over summer
- 2nd cycle (Dec 00 - Feb 01)
 - ▶ LVL1 Interface defined to allow independent development.
- 3rd cycle (Mar 01 - May 01)
 - ▶ LVL1/Tau trigger finished
- 4th cycle (Jun 01 - Aug 01)
 - ▶ Full chain: LVL1+LVL2+EF

ROI class

- Need ROI object to store in TES
- Must contain ROI word + extra information for analysis etc.
- Athena dictates that it must be simple:
 - ▶ not the “clever” ROI object used internally



ATLFAST (UCL) <http://www.hep.ucl.ac.uk/atlas/atlfast/>

- Rewritten in Athena. Proper OO implementation
- CellMaker simulates energy deposition in simple (flat) calorimeter.
- Seems useful, with good documentation(!)
- **Not totally stable or finished**
- **No timing information**

Conclusion

- Work is proceeding much faster now.
- Lots of people seem keen to help
- Athena is still extremely poorly documented.
- ... lots to do!!