Geant4 2006 Workshop goals

Issues & Thoughts

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Outline

- Key issues
  - Significant, collaboration/toolkit impact
  - Thoughts on areas
- Assess open requirements

- Current and upcoming developments
  - Address issues with open
- Publications and collaboration goals
- But .. if it not here, discuss & work on it anyway!
  - And try to resolve, figure it out, …

Key issues

- Physics performance
  - Hadronic physics verification & validation
  - Shower shape issue: QGSP too early / narrow
- CPU performance
  - Large experiments: huge productions
  - ‘Ordinary’ users
- Pushing for new publications
  - Collaboration publications
  - Targets for projects on key areas
    - Catalysts for important progress (eg in verification)

Physics performance

- Shower shape from LHC experiments
  - QGSP too early / narrow
    - from 20-300 GeV (Atlas HEC) or E>100 GeV (CMS)
- Coverage of hadronic physics verification
  - A hole: very few comparisons for $5 < E < 80$ GeV
- Energy deposition for e^-/γ beams
  - Issues raised in Poon/Verhaegen paper(s)
    - Artifacts and effects of interfaces

CPU performance

– Large experiments: huge productions
– ‘Ordinary’ users

New publications / collab. projects

- New publications are important goal for the collaboration:
  - Collaboration publications
    - Current target: physics configurations / phys. Lists
  - WG (or more) publications
    - Many key elements can become solid publications (geometry modeler, tracking, EM-std, …)
  - Look at gap in opportunities to publish?
    - After the ‘sub-publications’ are identified, implemented

Collaboration projects

- Can be catalysts for important progress
  - eg in verification
- Yet maintain realistic assessment of potential for extra effort

Testing versus fixing/improving ?

- Improvements vs bugs: a balance ?
  - Even fixes have created new problems
    - Has happened too often, especially with last minute fixes
  - Finding the right amount of testing
    - Developer, WG coordinator, integration, collaboration level
  - Learning from past practice is key
- But do address open issues!
  - Creating the perfect test suite before anything else is sclerotic

Cross collaboration topics

- Assess open requirements
  - Physics, reliability,
- Use cases and physics
  - Requirements of physics performance
    - Assessing and documenting these
  - Validation for the varied use cases
    - Start to consider what scalable ways can address these
- Not be afraid to address difficult subjects
  - Need for additional modeling options
  - Further expertise in key areas
  - Effort required to implement new approach
- Address the most timely issues first

Utilize the opportunities

- Address issues with open developments
  - Priority for agreed 2006 goals
    - Eg parallel geometry
- Discuss open questions
  - Between WGs, teams
  - Inside teams
- Take advantage of the presence of the majority of the most active developers

Finding effort for key topics

- How to address key open topics more effectively ?
  - Many topics in which members & users can contribute
    - How to bring together and reward contributions – Papers ?
  - July meeting of SB-members on ‘Communication and internal communication’