

---

# Applications Area Before CCRC08

MB Meeting  
5 February 2008

Pere Mato/CERN



# Foreword

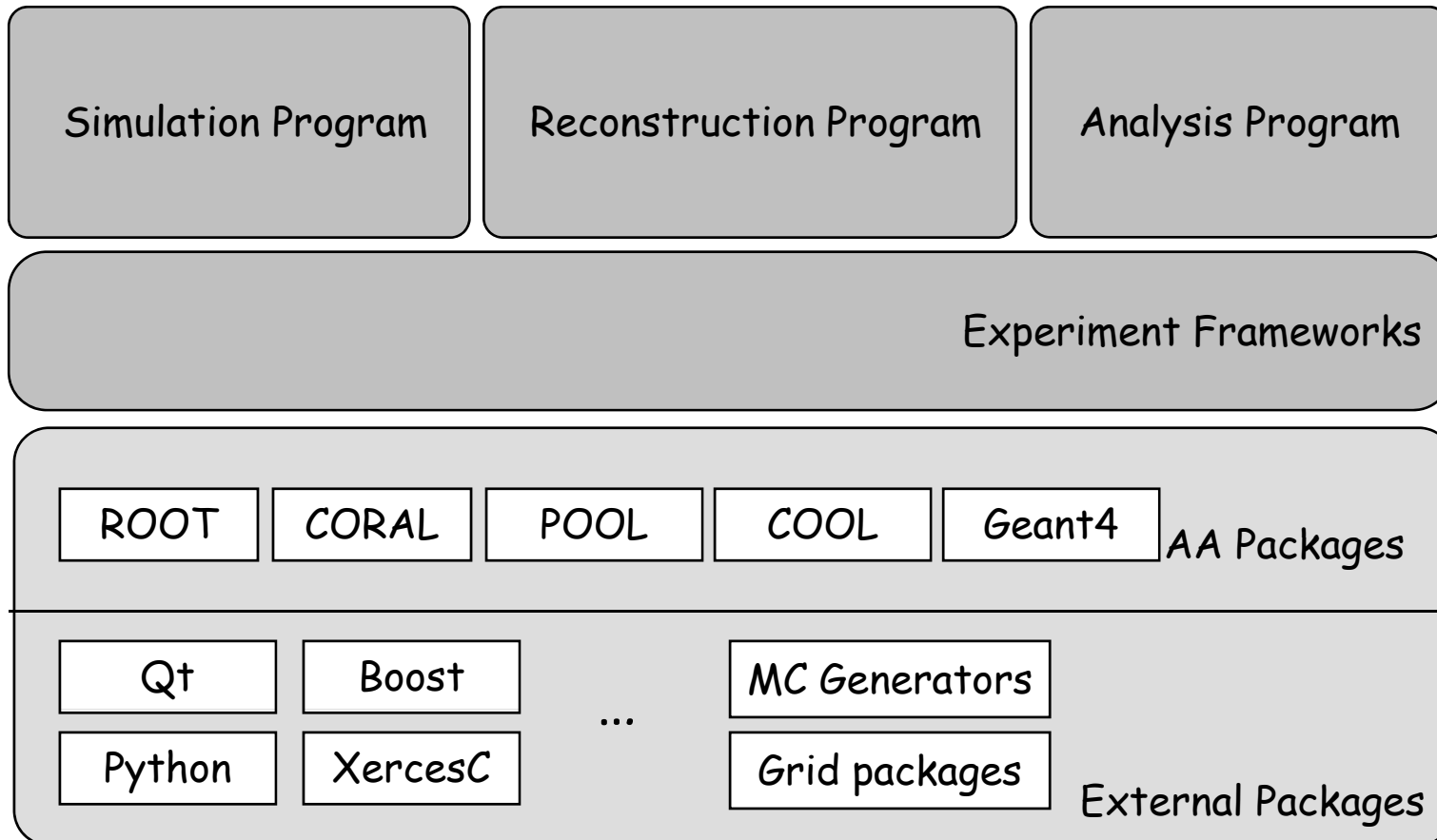
---

- ◆ The AA software version to be used by the experiments in the CCRC is very weakly coupled with grid services
  - Very few points of contact (e.g. access to event and conditions data)
- ◆ Assuming that each experiment will use the version they have managed to fully integrate and validate
  - CCRC February run -> last year releases
  - CCRC May run -> based on the new AA LCG\_54x configuration
- ◆ The rest of the presentation is about the current status of the Application software

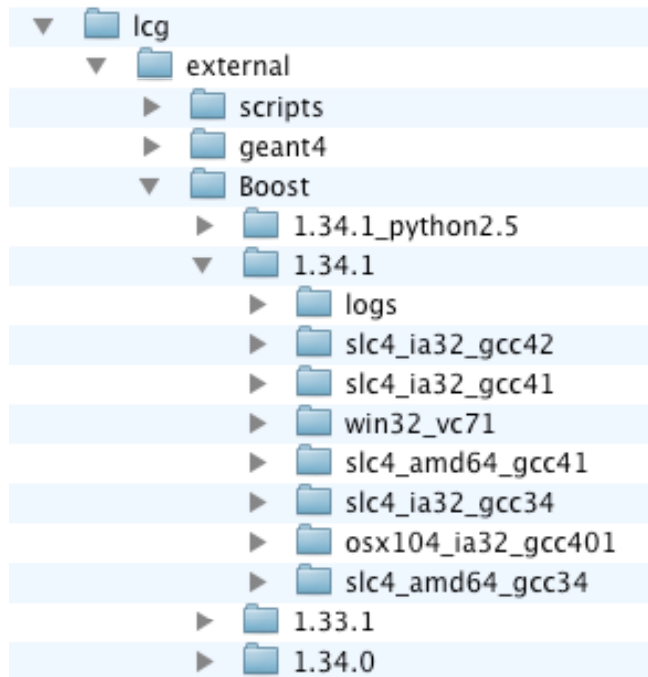


# AA Software Structure

---



# Software installations



- ◆ All AA software (external and internal) is available in /afs/cern.ch/sw/lcg
- ▶ Organized as <package>/<version>/<platform>
  - The platform keyword is made of operating system, architecture and compiler version
- ▶ Tar files (sources and/or binaries) for distribution are also available
- ▶ More than 100 packages available
  - For many packages only the client-side is required
- ▶ Automated installations made by a system of scripts within CMT (LCGCMT)
- ◆ Packages, versions are decided by Architects Forum (AF)

# Configuration

- ◆ An **AA LCG configuration** is a combination of packages and versions which are coherent and compatible
- ◆ Configurations are given names like "LCG\_54"
- ◆ Experiments build their application software based on a given LCG configuration
  - Interfaces to the experiments configuration systems are provided (SCRAM, CMT)
  - Concurrent configurations are everyday situation
- ◆ Configurations are decided in the AF

Package	old version	new version
boost	1.33.1	1.34.1
cmake	2.4.2	2.4.6
cppunit	1.10.2_p2	1.10.2_p3
david	-	1_36a
dawn	-	3_88a
doxygen	1.5.3	1.5.4
dpm	1.6.5	1.6.7
expat	1.95.8	2.0.0
frontier_client	2.7.4	2.7.6
gccxml	0.6.0_patch4	0.7.0_20070615
gfal	1.10.2	1.10.6
lcgdmcommon	1.6.5	1.6.7
lcgutils	1.6.0	1.6.4
lfc	1.6.5	1.6.7

# Supported platforms

---

- ◆ slc3\_ia32\_gcc323
  - Only available for old configurations
- ◆ slc4\_ia32\_gcc34
  - Current production platform for all experiments
- ◆ slc4\_amd64\_gcc34
  - Fully functional but some difficulties for some experiments
- ◆ win32\_vc71
  - Used mainly by LHCb as a second platform for development/testing
  - Missing interface to Castor, DPM, etc. → Requested to IT/DM
- ◆ osx104\_ia32\_gcc401
  - Requested by experiments as a second platform for dev/test
  - Missing interface to Castor, DPM, etc. → Requested to IT/DM
- ◆ slc4\_ia32\_gcc41 → slc4\_ia32\_gcc42
  - All AA packages successfully tested. Not yet the need for a release

# Configuration LCG\_54

---

- ◆ Released and announced January 21<sup>st</sup>
- ◆ A long list of version changes in the external libraries/tools
  - Python 2.5, Boost 1.34, and 17 others.
- ◆ New versions of all AA packages
  - ROOT 5.18.00 - production version, major release compared with 5.14 (which is in production by experiments)
  - SEAL 1.9.4 - minor changes
  - RELAX 1.1.11 - minor changes
  - CORAL 1.9.3 - adaptations and cleanup
  - COOL 2.3.0 - channel selection by name, bulk retrieval of channel ID-name mapping, partial tag locking and adaptation
  - POOL 2.7.0 - improved collections and adaptation

# Nightlies heavily used for validation

Project	Version	slc4_ia32_gcc34 (Mon Jan 21 06:15:04 2008)	slc4_ia32_gcc34_dbg (Mon Jan 21 10:16:01 2008)	slc4_amd64_gcc34_dbg (Mon Jan 21 03:21:26 2008)	osx104_ia32_gcc401_dbg (Mon Jan 21 02:03:58 2008)	win32_vc71_dbg (Mon Jan 21 06:53:30 2008)	slc4_ia32_gcc41 (Mon Jan 21 14:31:06 2008)
LCGCMT	LCGCMT-preview	build tests	build tests	build tests	build tests	build tests	build tests
ROOT	ROOT_today	build tests	build tests	build tests	build tests	build (1) tests	build (2) tests
SEAL	SEAL-preview	build (7) tests	build (7) tests (2)	build (9) tests (1)	build (32) tests (3)	build (65) tests (23)	build (88) tests
RELAX	RELAX-preview	build tests	build tests	build tests	build tests	build (344) tests	build tests
CORAL	CORAL-preview	build tests	build tests	build tests (1)	build tests (18)	build (14) tests (19)	build (167) tests
COOL	COOL-preview	build tests	build tests	build tests	build tests (3)	build tests	build tests
POOL	POOL-preview	build tests	build tests	build tests	build (17) tests (6)	build (10) tests (19)	build (53) tests
GAUDI	GAUDI_HEAD	build (8) tests	build (8) tests	build (8) tests	build (12) tests (2)	build (1) tests	build (15) tests (3)

- ◆ Enabled experiments to validate the candidate releases in all platforms
  - A number of issues (show stoppers in some cases) discovered before release
  - Unfortunately not all the experiments managed at the same level of detail
  - More testing/validation is needed for major releases(1 month is not sufficient)
- ◆ The actual complete release took very little (1-2 days) after ROOT was tagged (→ Main goal in 2007 has been to speedup the release process)



# Simulation packages

---

- ◆ Geant4 version 9.1 released on December 14th as planned
  - Includes GDML as a new plugin and an extension of the binary cascade model for hadronic physics.
  - CPU improvement in the hadronic part (of the order of 5 %) is expected
  - Experimental new physics list to enable the analysis of test beam data.
  - The validation of the hadronic physics has been done with 5000 jobs submitted in the Grid
    - » about half the number of jobs compared with last time mainly due to the reduced resources with SLC4 available for Geant4
- ◆ MC Generators
  - New structure stable and used by experiments
  - In total 22 generators in various versions installed



# Summary

---

- ◆ LCG\_54 released few weeks ago
  - Better validated than previous releases but not yet perfect
  - This is the main configuration that we expect the experiments will be using for the rest of the year
- ◆ Machinery ready to produce new complete software releases (mainly for bug fix releases) in short time (days)
  - We know that is impossible to deliver bug-free software
  - The solution we adapted is to optimize/speedup the process
    - » Reporting->debugging->fixing->testing->validating->releasing
- ◆ Main AA activity is consolidation and optimization of the existing software packages
  - Not expected big functionality changes in 2008

