

Status Report on the Validation Framework

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15th Geant4 Collaboration Workshop
10/06/2010





Overview

- Motivation and Benefits
- Overview of the system and the Workflow
- Deployed Tools & near-term plans
- Computing Resources and future plans
- Summary



Motivation and Benefits

- **Motivation:**
 - Standardize testing among developers
- **Benefits:**
 - Improve the consistency of the tests
 - Completion of tests on definite timescale
 - Access to the results in the central location
 - Share the tools and resources
 - Share the comparison reference
 - Track history as the models evolve

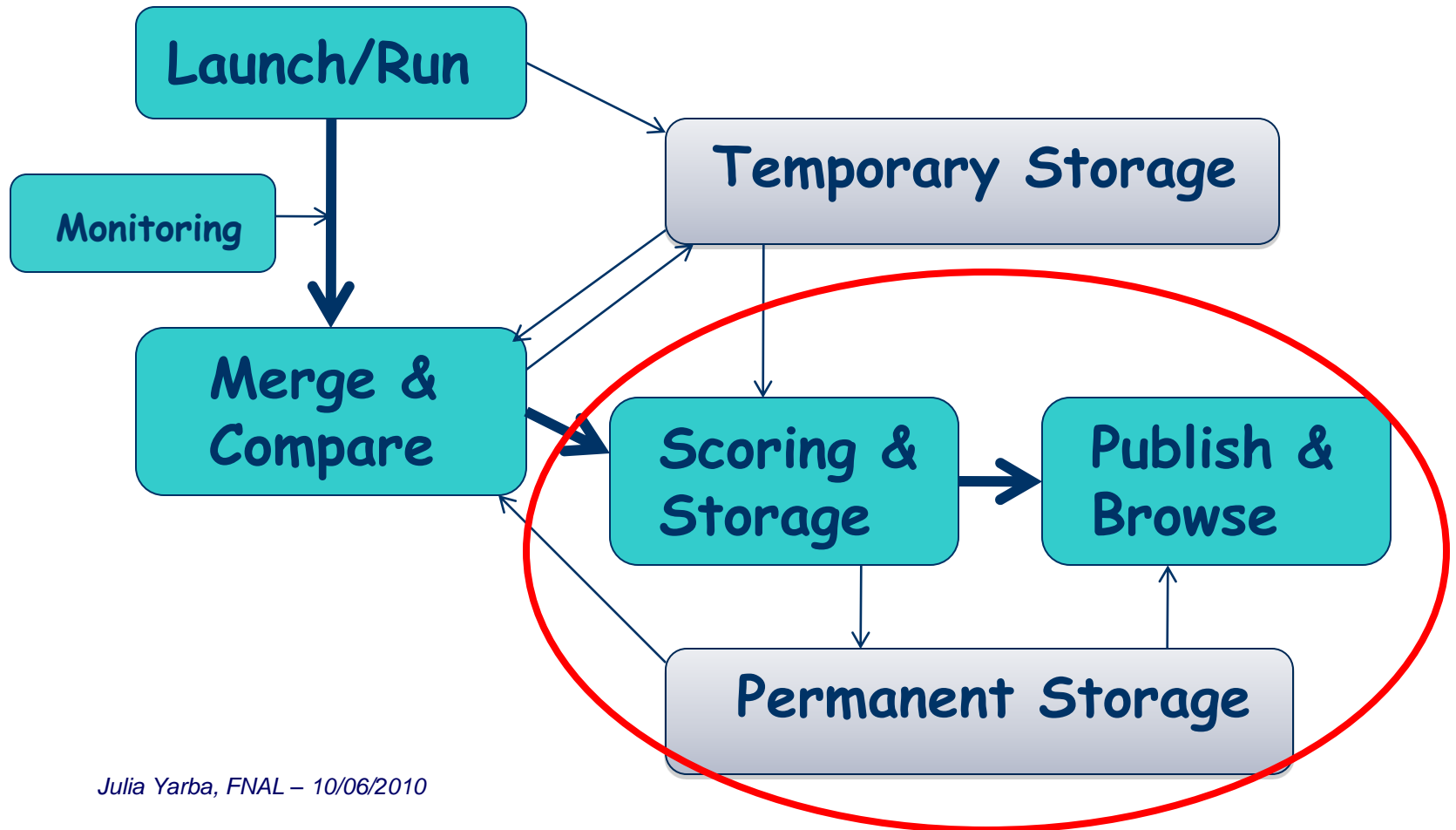


System Overview

- Geant4 application code + Ascii tables - in CVS
 - Build executables & select subset/groups or all tests
- Computing Resources (more later)
- Applications to perform the following:
 - Execute (incl. parallel jobs for CPU-heavy tests)
 - Merge and Compare
 - Examine, Store (Publish) and Display
- Requirement & Design Documents:
http://geant4.cern.ch/collaboration/working_groups/hadronic/#Testing
- **Joint effort with EM - talk by A.Schaelicke**

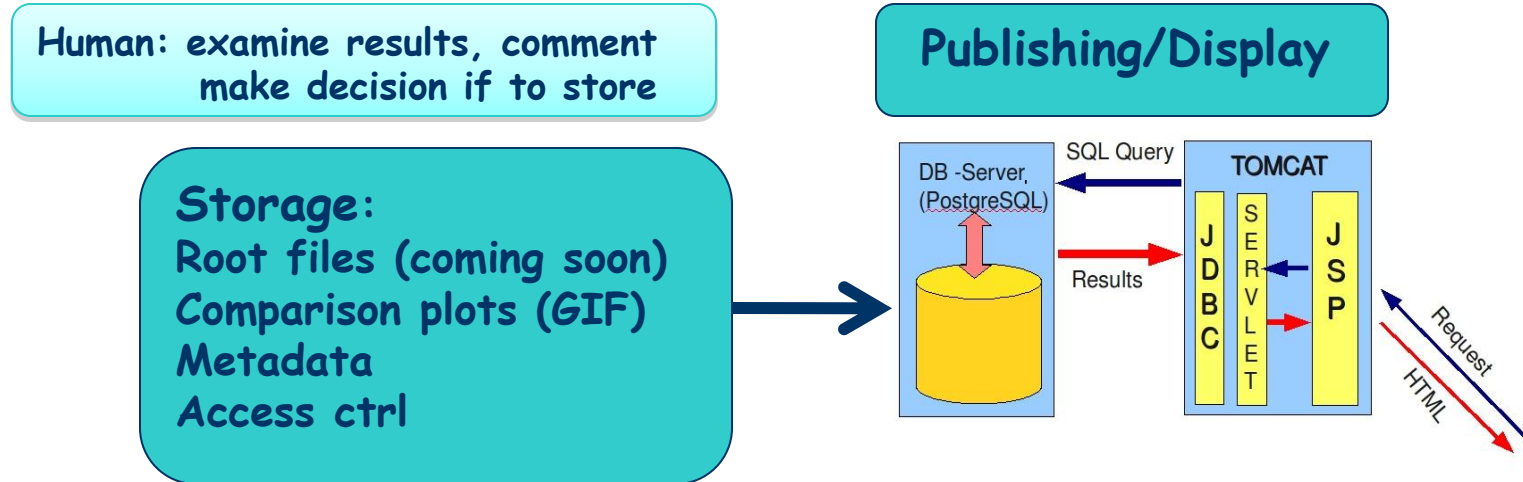


Workflow and Proposed Applications





Storage, Display and Publishing



PostgreSQL + Web-based (JSP)

DB and Web Application up and running
<http://g4jsp.ifh.de:8080/G4HadronicValidation>
The DB is backed up. The setup is documented:
<https://svnweb.cern.ch/trac/g4validation/wiki>

Geant4 Physics Validation - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://g4jsp.ifh.de:8080/G4HadronicValidation/G4ValHAD.jsp?TID=69

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geant4hadronics - ... x VOMRS - cms x Geant4 Physics Va... x

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Home > Results & Publications > Physics Validation and Verification

Home Validation Overview Electromagnetic Hadronic **Expert**

Name of the Test: test30
Responsible: V. Ivanchenko
Description: Test of hadronic generators of inelastic processes

Geant4 Version: 9.3.ref06
Observable: dsigma/dE dOmega
Reaction: n + Pb ->n+X

Test Conditions	
Name	Description
Target	Lead
Particle	n
Energy	65 MeV
Model	Bertini (Bert)
Model	Binary Cascade (BIC)
Angle	20. deg
Angle	28. deg
y-scale	linear
Score:	passed
Type:	expert

Results

n + Pb -> n + X, E = 65 MeV; $\theta = 20^\circ$

$\frac{d\sigma(E_X)}{dE_X d\Omega}$

$\theta = 28^\circ$

Data BIC BERT

$\frac{d\sigma(E_X)}{dE_X d\Omega}$

E (MeV)

List of HAD Tests

List of hadronic Tests

Hadrcap

Ndata

Test30laea

test30

9.3.ref02

9.3.ref03

9.3.ref04

9.3.ref05

9.3.ref06

test35

test45

test47

Publishing Results
(password protected)



Open Issues & Near-term Plans

- Improve & clean up Publication tools
- Upload large volume of existing data (tools for multiple uploads in progress)
- Add features for uploading Root files
- Improve indexing and searching
- Interactive overlay/comparison
- Maintenance
- Anything else ?
- **Manpower needed !**

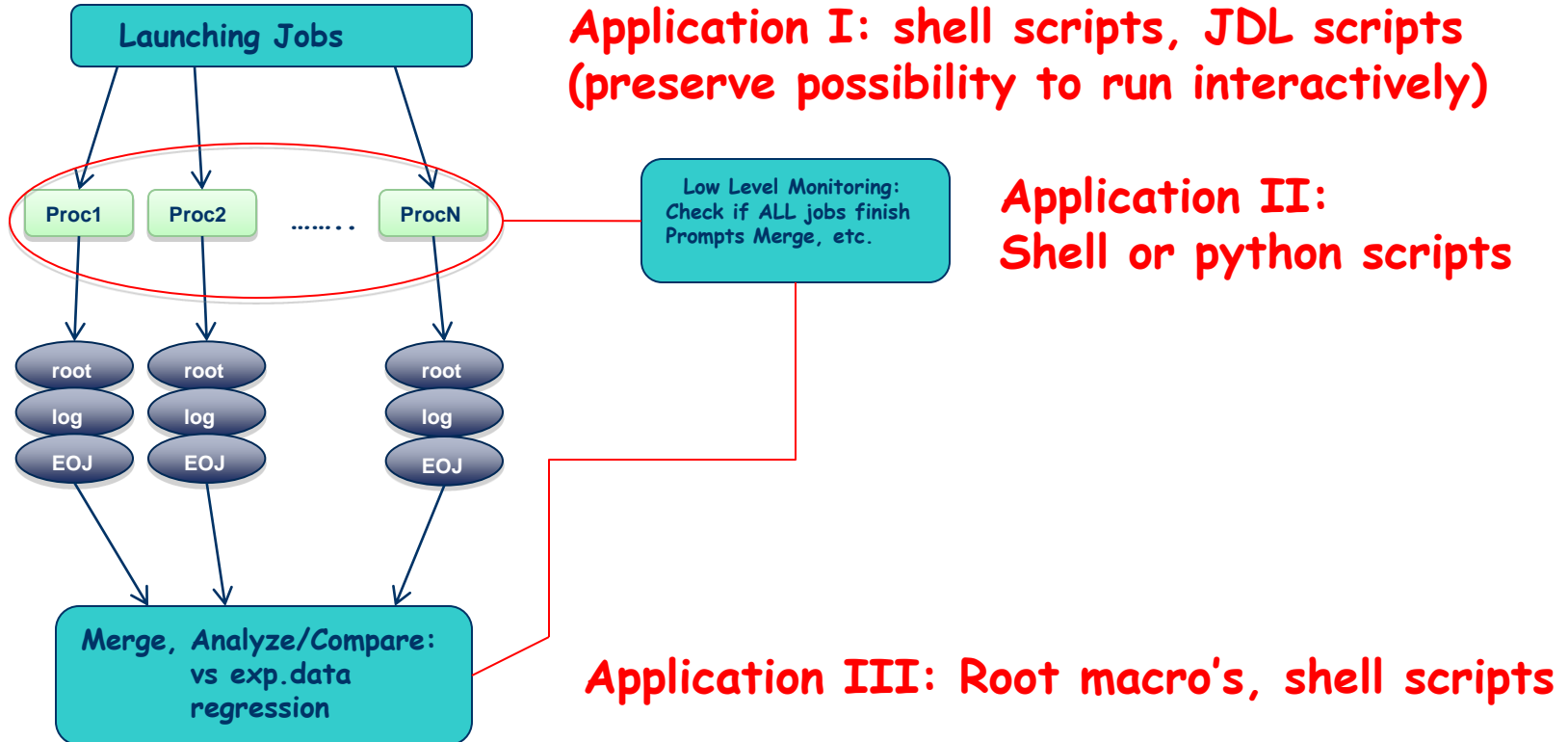


Computing Resources

- Dedicated resources available at FermiGrid
 - Guaranteed run-time environment
 - Geant4 build provided via central install being exported to worker nodes (e.g. /grid/app on FermiGrid)
 - Job monitoring and diagnostic is (relatively) easy
- Other grid sites can be added if interested
- “Opportunistic” use of resources **on-site** possible
- OSGMM installed and documented; need to try
- Manpower needed to implement production tools



Execution, Results Collection





Summary

- G4 Validation Framework is joint effort HAD+EM
- Storage, Display and Publication tools deployed at the dedicated server at DESY-Zeuthen
- DB is backed up, setup documented
- Collection of validation results partially transferred to the new system; need to complete !
- Various improvements - in near-term plans
- Next big step - production tools
- Manpower absolutely needed !