

Validation Infrastructure: Improvements and Status

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- Motivation & System Overview
- Recent Progress
- Near-term Plans

Principal contributions:

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Special thanks: V.Ivanchenko (CERN)



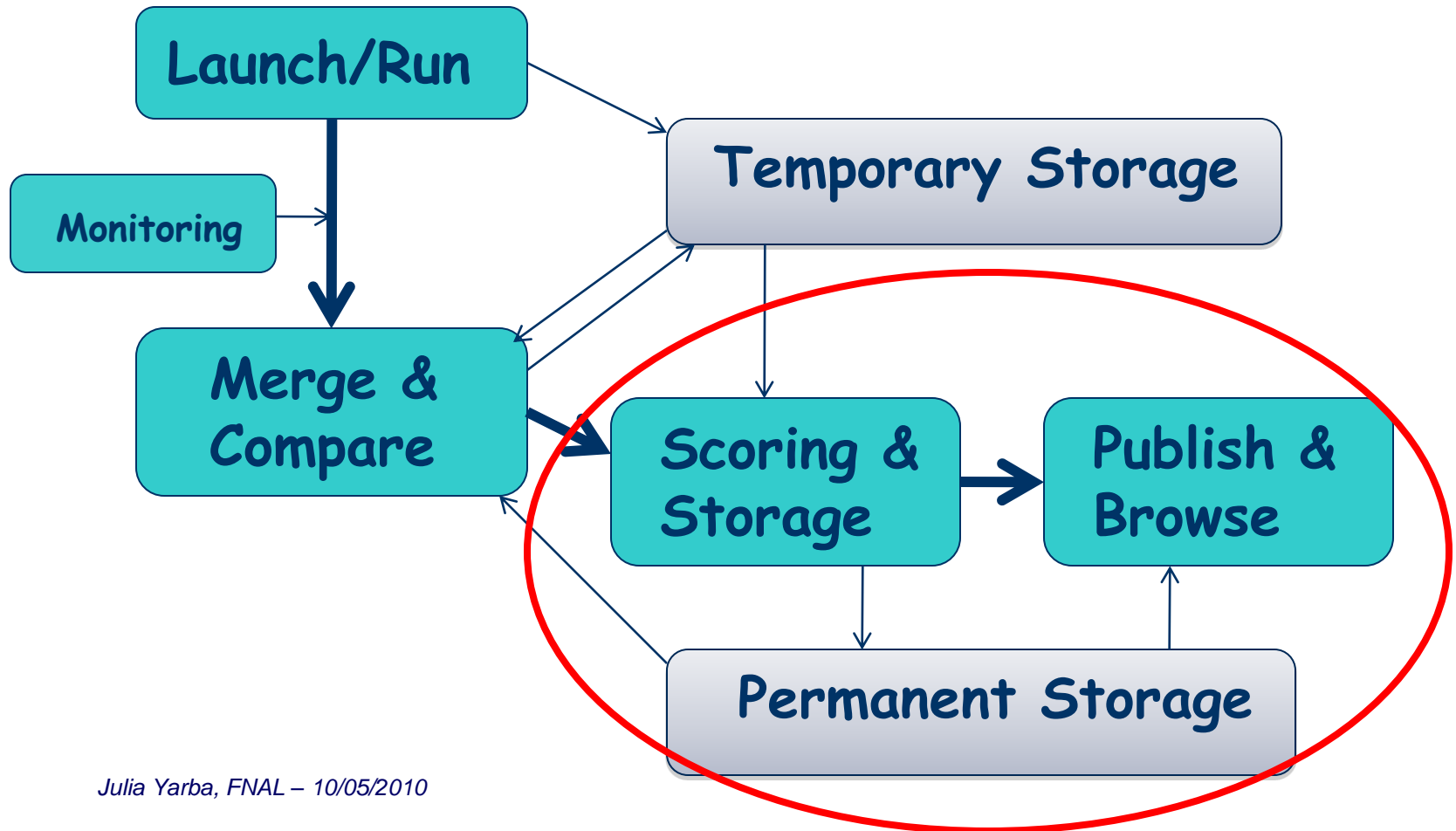


Motivation and Benefits

- **Motivation:**
 - Standardize testing among developers
- **Benefits:**
 - Completion of tests on definite timescale
 - Access to the results in the central location
 - Share tools, resources, and references
 - Track history as the models evolve
- Requirement Document - "signed" July 2009
- Design - outlines at the last year's G4 WS



Workflow and Applications





Recent Progress

- Design Document written and “signed”
- The project has evolved into **joint efforts with the EM group**
- Storage and Applications for Display and Publication implemented and deployed at the dedicated server at DESY-Zeuthen:
<http://g4jsp.ifh.de:8080/G4HadronicValidation>
- Detailed reports and discussion at the Hadron-2 parallel session, incl. report from A.Schaelicke on EM Validation efforts

http://g4jsp.ifh.de:8080/G4HadronicValidation

Geant4 Physics Validation - Mozilla Firefox

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

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Geant 4

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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

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; $\theta = 20^\circ$

theta = 28 degrees

Data BIC BERT

List of HAD Tests

List of hadronic Tests

- Hadrcap
- Ndata
- Test30iaea
- test30
 - 9.3.ref02
 - 9.3.ref03
 - 9.3.ref04
 - 9.3.ref05
 - 9.3.ref06
- test35
- test45
- test47

Publishing Results (password protected)

Done



Further Plans

- Upload large volume of existing data
- Cleanups of existing applications
- Root files & Interactive overlay/comparison
- Maintenance
- Implement production tools for CPU heavy tests
 - Initial computing resources identified



Summary

- G4 Validation Framework is joint effort HAD+EM
- Storage, Display and Publication tools deployed at the dedicated server at DESY-Zeuthen
- 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 !**