Data Quality Monitoring

Progress since last PRC

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DESY

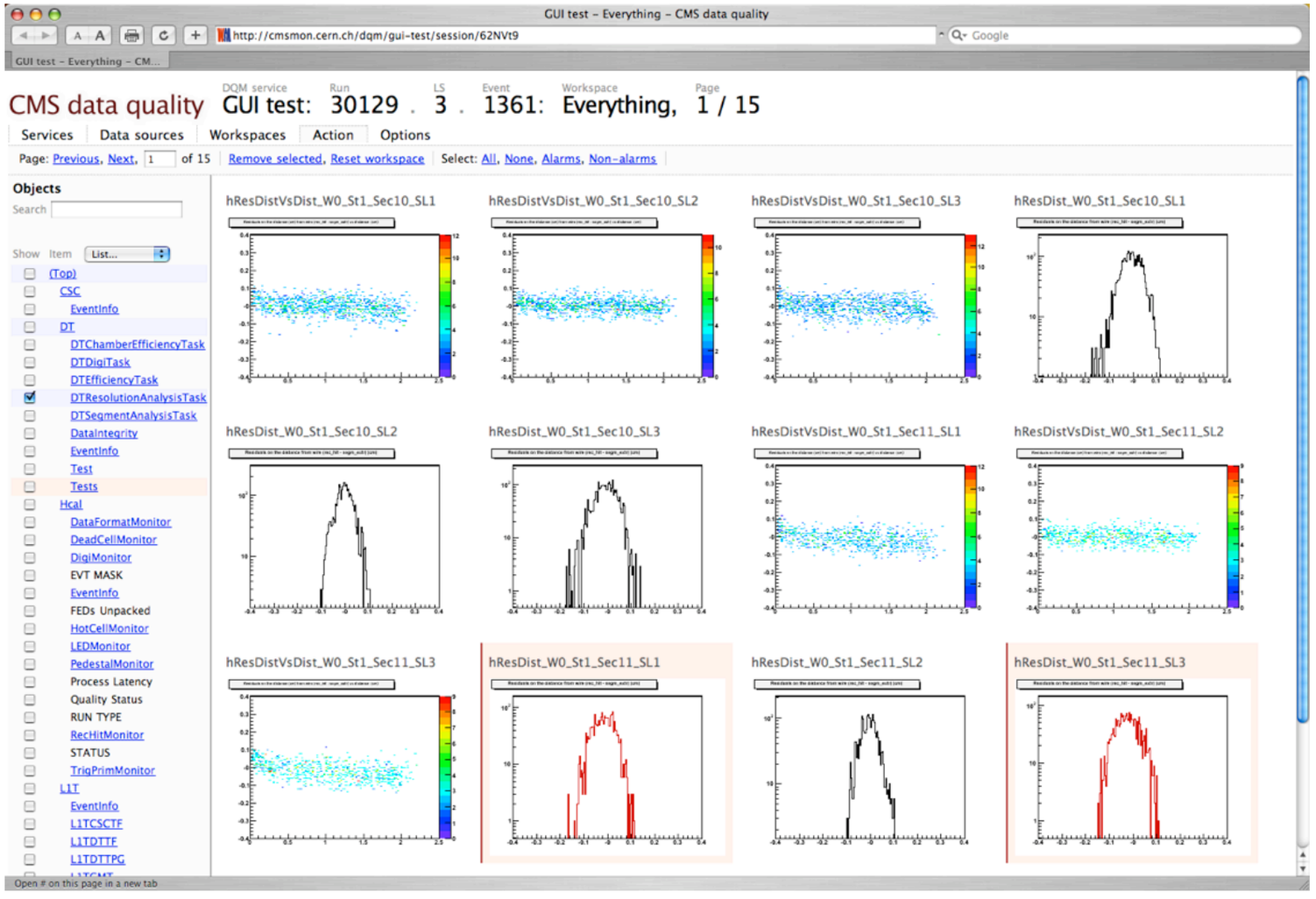
DQM

http://cmsmon.cern.ch/dqm/online live

http://cmsmon.cern.ch/dqm/online-playback playback

Lassi Tuura

- Web-based service
- no specific S/W installation on user side
- accessible from
  - P5, CERN
  - Remote
- access to histograms
  - Online (live)
  - Online (file-archive)
  - Offline Tier-0 (file-archive)
  - Offline CAF, Tier-X, ...

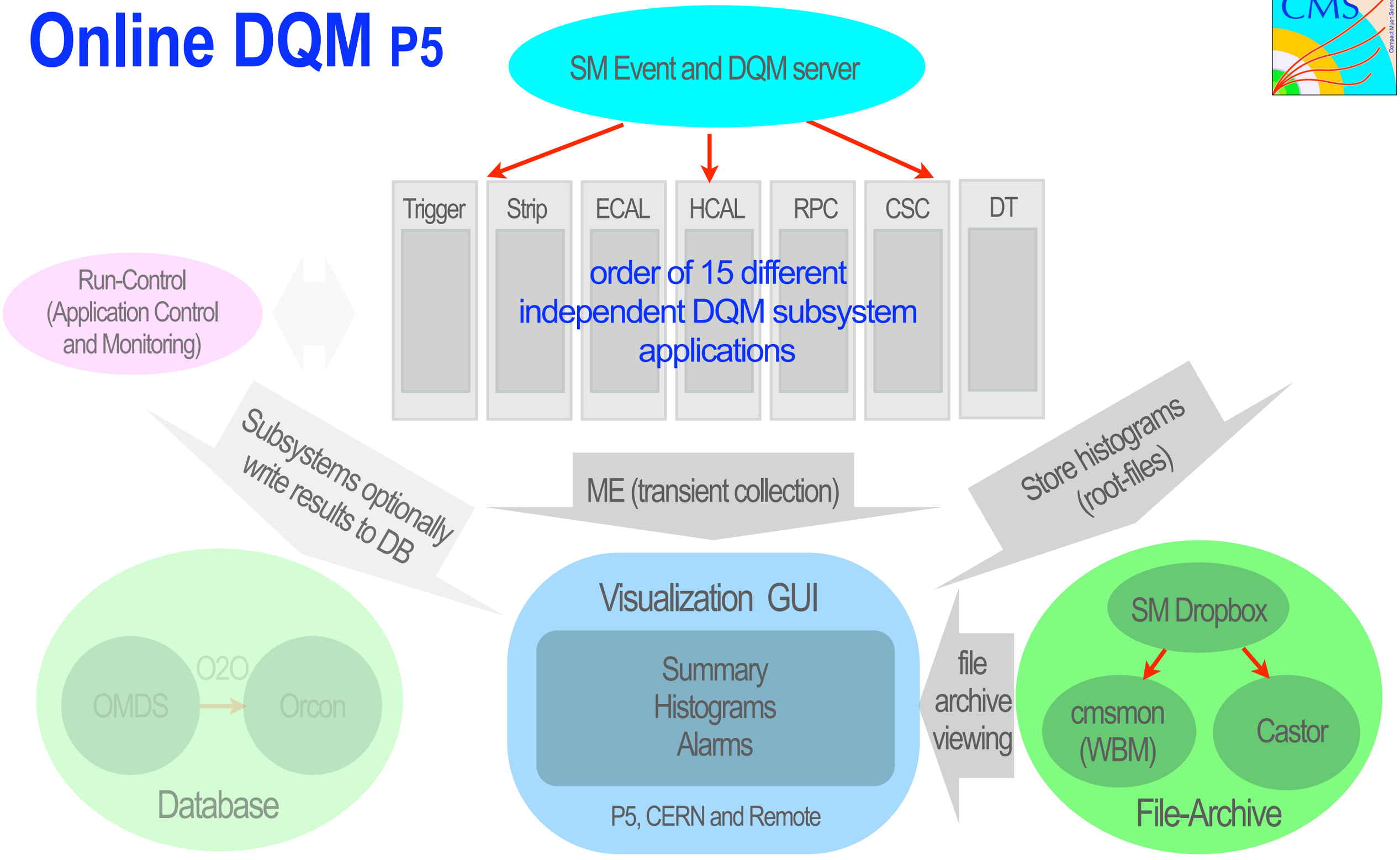


Simple and fast access to all DQM data – Same tool for online and offline DQM

DQM group provides infrastructure, coordinates intergretion, organizes operation

DQM project page at https://twiki.cern.ch/twiki/bin/view/CMS/DQMInfrastructure

Online DQM P5



DQM system baseline deployed during GREN

Online DQM

Real-Time Detector and Operation Efficiency

Code Developments

- Based on experience in 2007 major modifications of the code infrastructure have been implemented
- Upgrade of histogramming framework
  - Cleanup and code simplification
  - New histogram transport layer
  - New data structure
- New features for Web-GUI
  - Improved Navigation
  - GUI access to archived histogram files

1 DESY Fellow joined the effort in Dec 07

Integration / Operation

- Support for real-time monitoring during commissioning for all detector components
- First version of detector status summary views deployed

Subsystem	Error summary	Run	Lumi section	Event	Last update	Last event	Processed events	Event rate	Monitor elements
CSC	-1	30129	4	918	30 secs in future	30 secs in future	1286225	2.45	16
EcalBarrel	-1	30129	4	921	30 secs in future	30 secs in future	1046380	1.77	853
Hcal	0.696	30129	4	977	30 secs in future	30 secs in future	1286650	2.48	189
L1T	-1	30129	4	921	30 secs in future	30 secs in future	1284325	2.42	189
RPC	-1	30129	4	942	30 secs in future	30 secs in future	1125321	2.35	145
SiStrip	1	30129	4	936	30 secs in future	30 secs in future	511625	2.45	216

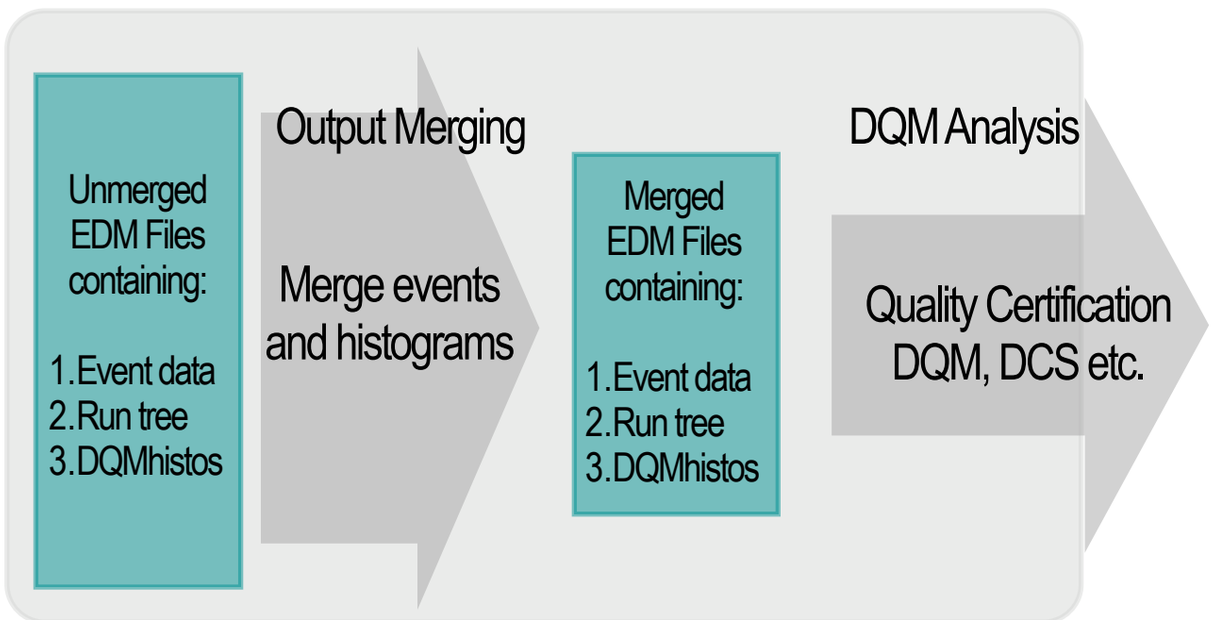
- Online DQM in RunControl
  - Online DQM Applications
  - StorageManager Proxy Server

Offline DQM

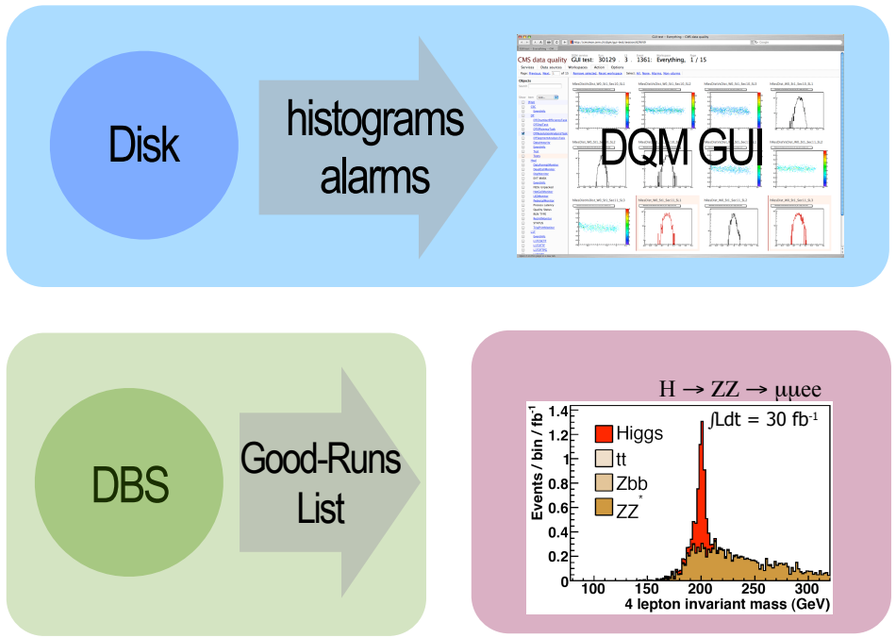
Data Quality Certification / Validation

- Requirement:
  - Code portability between online and offline
- Status:
  - Workflow defined, core software components implemented
  - Online software reused for offline DQM, same web based GUI

Tier-0 Processing



Monitoring and Analysis



Offline DQM

- Standardization:
  - Integration campaign to establish conventions and coherence among the many DQM user groups (DPG, POG, PAG, AliCal)
  - Next large scale meeting: Offline week beginning of April

- Deployment:
  - Functionality tests will be done using Relval processing
  - Tracker is planning to use offline DQM for April 08 cosmics data taking
  - DQM and Validation workflows of AliCal should be tested in context of iCSA08
  - First working implementation of offline DQM workflows should be in place for CRAFT

Aiming for a homogeneous monitoring and data certification system across CMS

Summary

- DQM Software Development
  - Major code improvements, rewritten transport layer
  - DQM GUI access to file archive

- Online DQM
  - Operation in RunControl
  - First version of detector status & alarm summary views
  - Real-time data monitoring during Subdetector Commissioning

- Offline DQM
  - Scheme and core code devised
  - Functionality test underway / attempt production mode for CRAFT (May / June)