Data Operations
& the Remote Operations Center

(First beam in the LHC, Sep 10 2008)

Data Operations –what? who?

- Two teams, one at CERN, one at FNAL
  (C. Paus @ CERN, L. Bauerdick @ FNAL)

- Manages all data processing beyond storage manager:

  – T0 Operations
    (J. Bendavid @ CERN, D. Mason @ FNAL)

  – T1 Operations
    (G. Ceballos @ CERN, K. Hahn @ FNAL)

  – Release Validation
    (D. Romero @ CERN, O. Gutsche @ FNAL)

  – Data Transfer
    (S. Xie @ CERN, P. Rossman @ FNAL)

  – MC Production
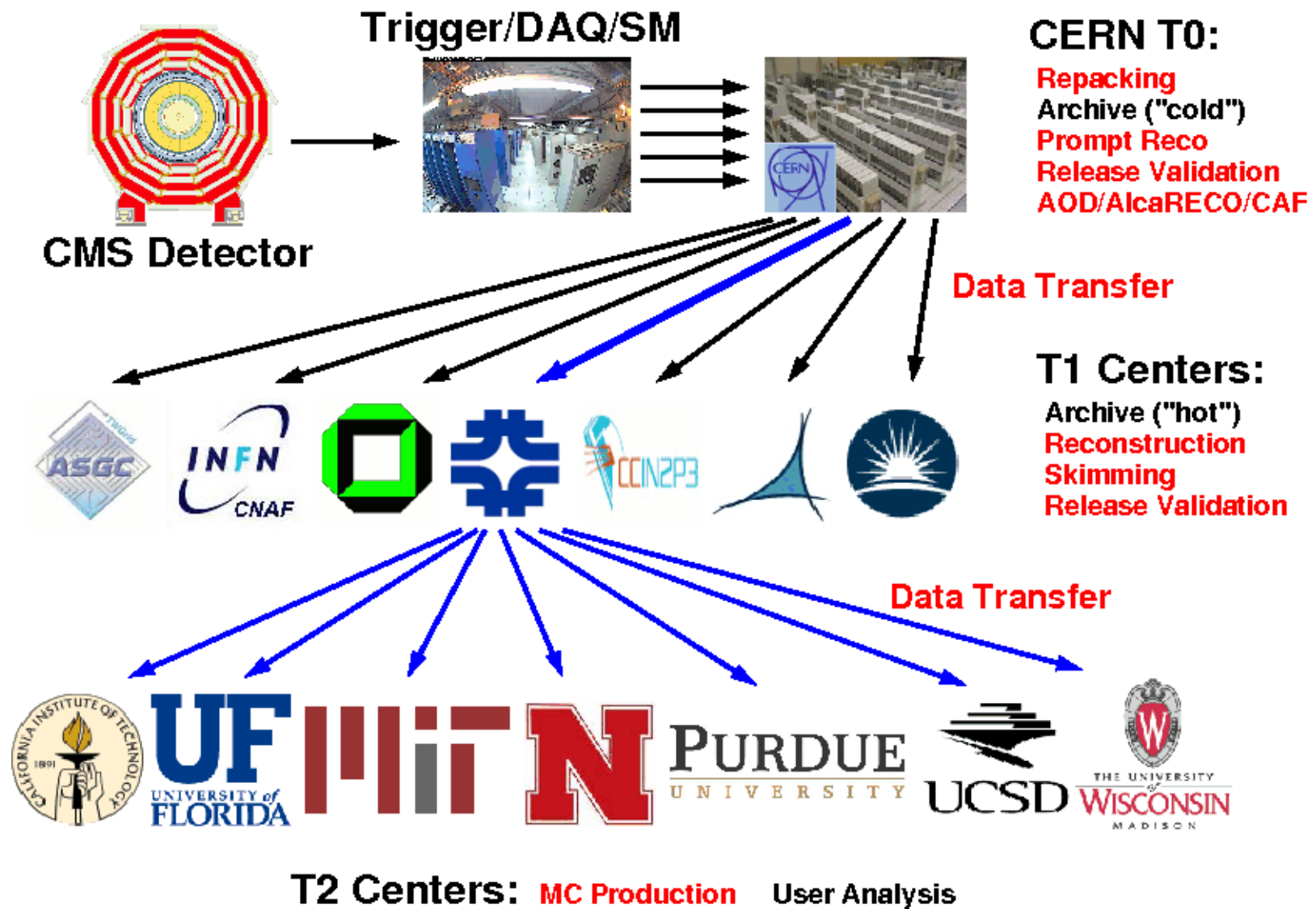   (M. Thomas @ Europe, A. Mohapatra @ US)

Why a Data Ops Team at FNAL

- Active FNAL team in operation since Summer '07

- Takes advantage of natural 7 hour time zone difference

  – Can be active after CERN day ends

- FNAL is the largest T1, allocation even more than for CERN T0

  – FNAL is only T1 with resources exclusive to CMS

- Concentration of Experts

  – Software development: T0, ProdAgent, CMSSW Framework, DBS/Frontier

  – Remote Operations group based here at FNAL

  – Detector expertise (CSC's, Hcal, Tracker...)

  – Physics expertise from the LPC

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1-shot CMS Computing Model

D. Mason, 2009 JTerm

During Data Taking

- Data Ops must monitor & maintain the automated T0 systems

  – Monitor P5 – CERN transfers, data repacking, prompt reco and calib. Workflows, detect and report any job crashes, make sure results recorded in DBS

- Must monitor data transfers

  – Data must reach the T1's promptly for custodial storage

- Operates and manages T1 processing

  – Skimming happens as data reaches T1, reprocessing large datasets as improvements made to software/calibrations

- Concurrent with this:

  – Release Validation – front line in finding software problems

  – Monte Carlo Production – run at T2's all the time

You can find data ops in the ROC

- During datataking period this summer & fall, data ops maintained 24 hour shift coverage at CERN and FNAL ROC
  - Direct connection with CERN team and access to P5!
  - Able to monitor and <u>control</u> computing systems remotely from the ROC
- We need talented people to become involved in both data ops & development of the tools
  - Service credit!
  - Its where the action is!
  - Visit distant and exotic places!
  - Still lots of work to do to improve & upgrade systems before beam returns, many places one can make an impact!