Computing Infrastructure

Hartmut Stadie

CMS Hamburg Meeting
March, 28th 2007

Introduction

DESY/UHH CMS computing

- bi-weekly meetings: Wednesday 10:30
- cms-hamburg-computing@desy.de
  discuss computing issues
- cms-hamburg-discussions@desy.de
  ask all kind of questions
- cms-admin@desy.de
  hardware and configuration problems
  (Birgit Lewendel, Alan Campbell, Hartmut Stadie)

New Hardware

10 Nodes

- 2 Xeon 3.0GHz (4 cores)
- 8 GB RAM
- 4 $\times$ 500GB disks (1.5 TB RAID 5)

Configuration

- uhh-cms011: SL4 64bit
- uhh-cms012 - uhh-cms020: SL3 64bit
- CMS software via afs
- mounts:
  - /data (local data area)
  - /rdata/uhh-data01 (uhh-data01 file server)
  - /rdata2/uhh-cms0xx/data (data areas from other WGS)
  - /pnfs

Configuration II

Roles

- uhh-cms011: workgroup server (SL4 for alignment)
- uhh-cms012 - uhh-cms015: workgroup server
- uhh-cms016 - uhh-cms020: PROOF test nodes

CMS Software

CMSSW can be compiled and run on the 64bit machines forcing 32bit mode.
Please see:
http://www-flc.desy.de/hamburgcms/cmshamburgwiki/Local_Computing_Issues

Please mail cms-admin@desy.de for local directories or to report problems!

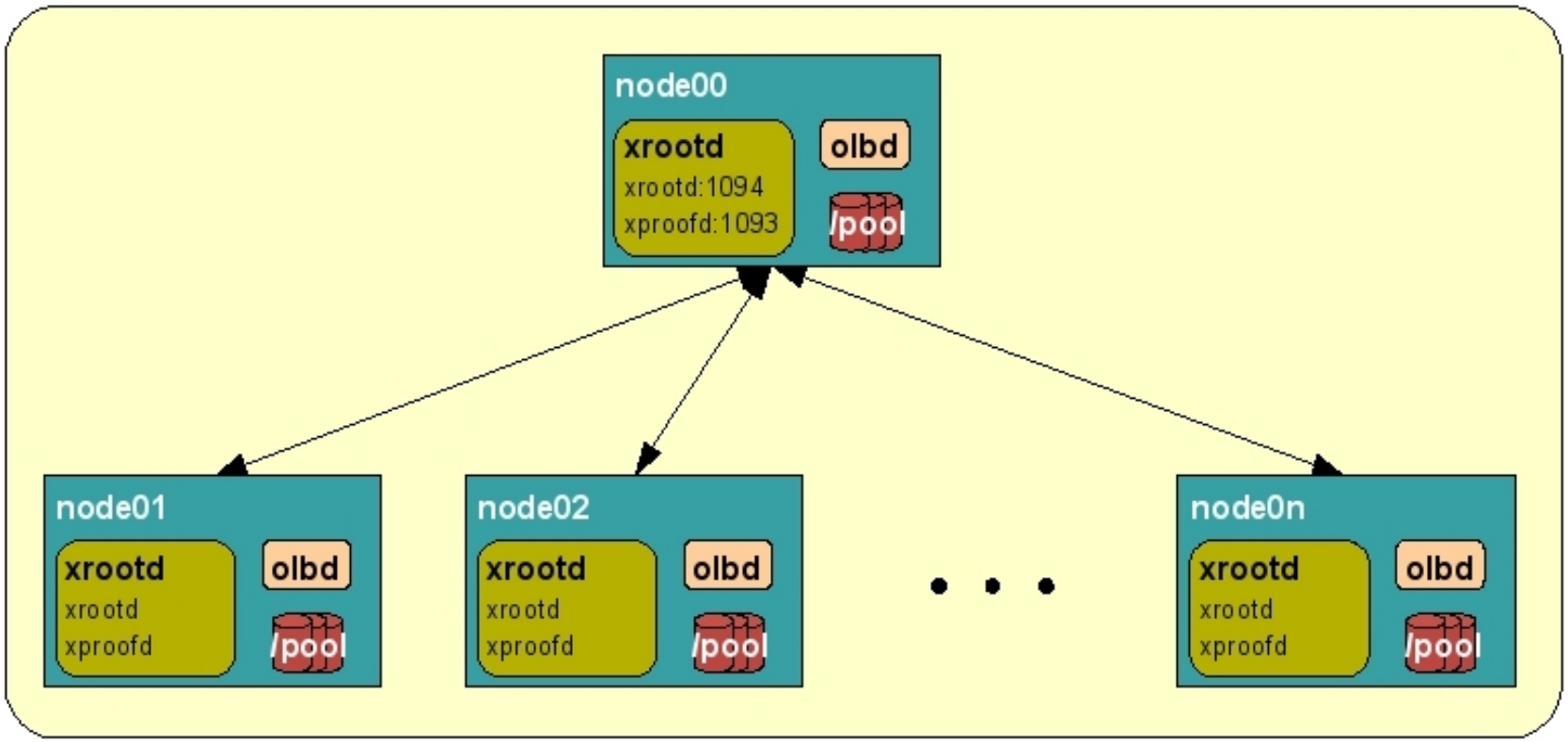
Local Batch

SGE test system

DESY IT will set-up a SGE test installation.
plan:

- 2 batch jobs per node (uhh-cms012 - uhh-cms020)
- 2 queues: short and long

PROOF: Cluster Schema



PROOF: Test Setup

Setup

- Master: uhh-cms015
- xroot Server and PROOF WN:
  - uhh-cms016
  - uhh-cms017
  - uhh-cms018
  - uhh-cms019
  - uhh-cms020
- use 64-bit ROOT for services
- runs in user-space (no super-user rights needed)

Demonstration

Test Job

- 700 000 ZEUS DIS events
  (trigger, kinematics, vertices, tracks)
- 1.7 GB
- job:
  - loop over $D^{\pm}$ candidates
  - compute L_{xy} using beam line
  - determine reduced primary vertex (DAF) and copmpute L_{xy}
  - plot mass for displaced vertices
- packages:
  - ntuple package
  - CLHEP
  - ZEUS vertexing library
  - own TSelector

Next Steps

Status

- setup test cluster
- works for complex analysis scripts

Next Steps

- account to run service
- authorization (host based or krb5)
- load balancer tests
- benchmark and refine setup
- test CMS data analysis using FrameworkLite

Conclusions

now

- new workgroup servers for everyone:
  uhh-cms012 -uhh-cms015

soon

- new file server for unoffical, local data sets, PROOF tests

planned:

- SGE for analysis using local batch (18 slots)
- PROOF for interactive analysis