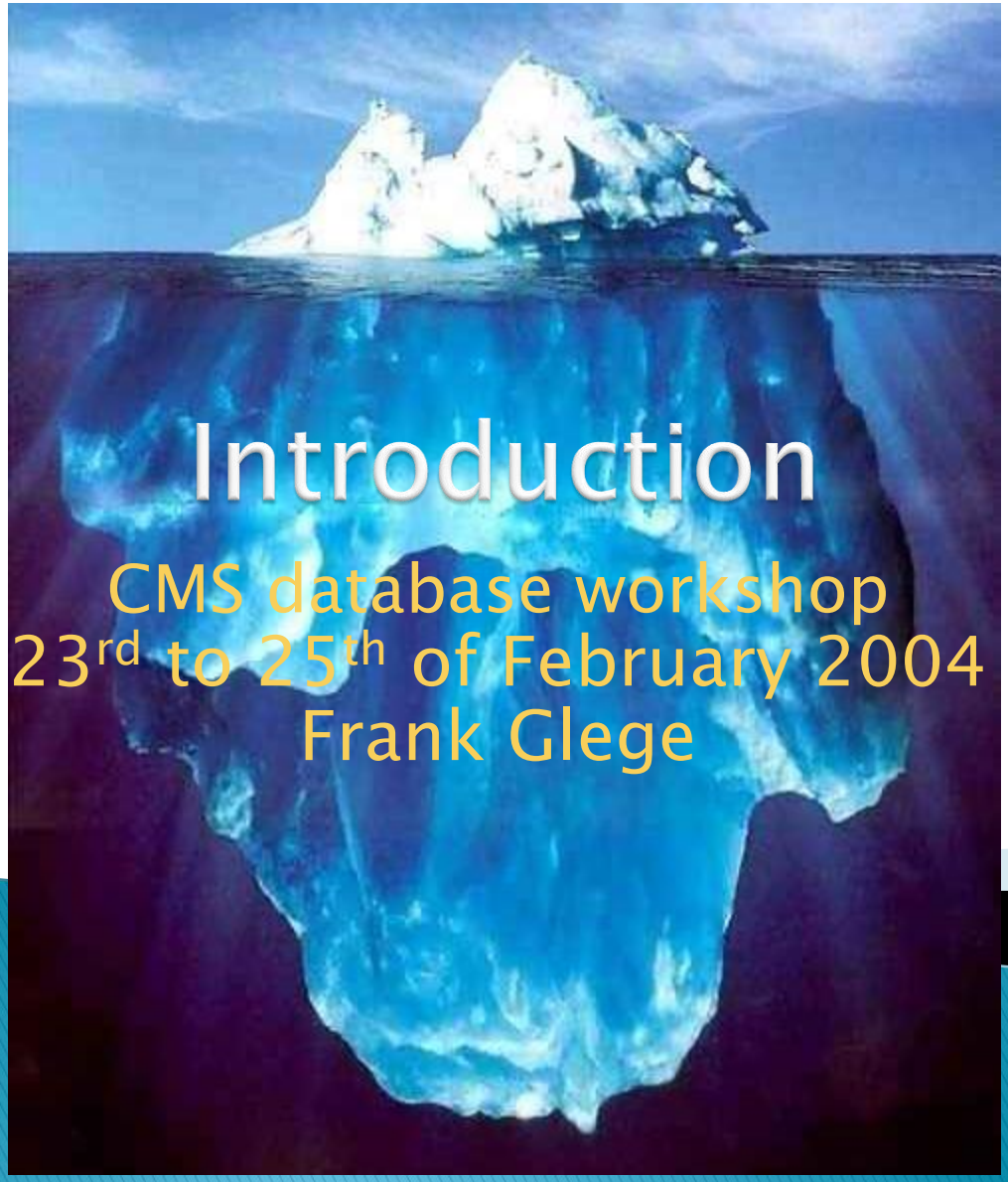
On line DB status

Db workshop
06/07 June 2011
Frank Glege

Outline

- History
- DB structure and data flow
- Usage
- Hardware
- Running experience
- Outlook



Introduction

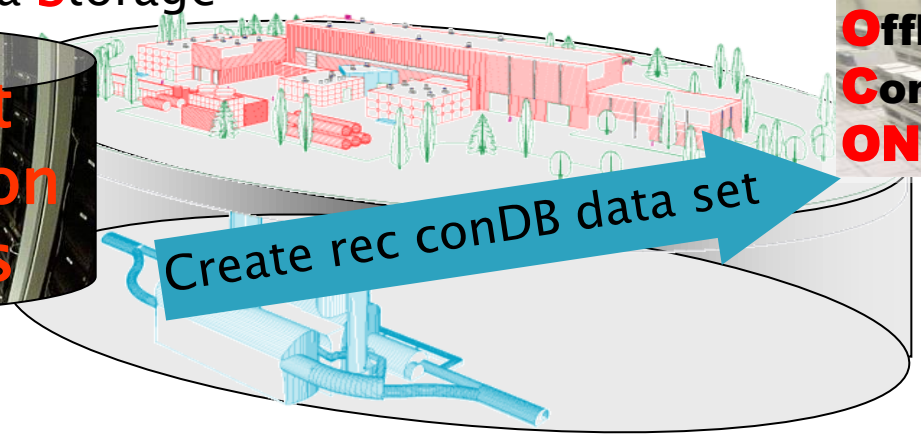
CMS database workshop
23rd to 25th of February 2004
Frank Glege

History

- On line DB activities were started in 2004
- Two workshops were organized
  - CMS internal with basic DB development course
  - With all LHC experiments and IT
- Decision on classification as configuration, conditions, integration and construction data
- Design of DB model and data flow
- Selection of HW (RAC: 6 nodes + 120 disks of 150GB)

Data flow

Online Master Data Storage



Offline Reconstruction
Conditions DB
ONline subset

Calibration

Conditions

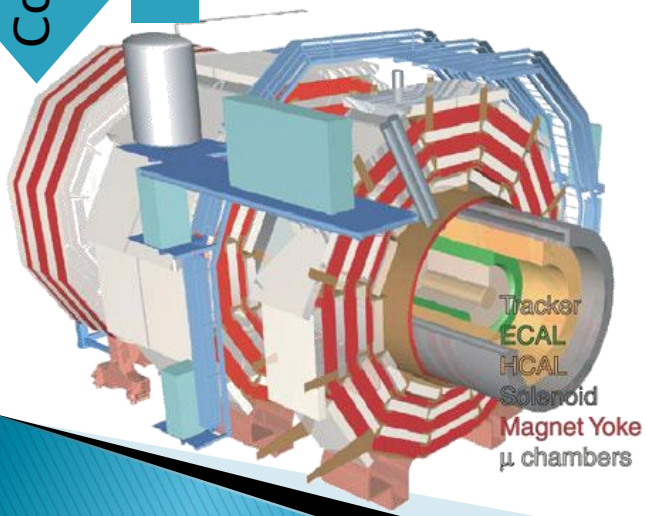
Configuration

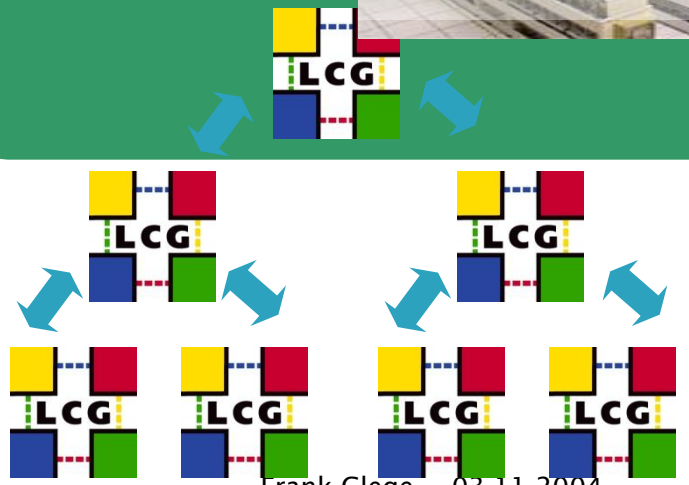
Conditions

Bat 513

Master copy

Offline Reconstruction
Conditions DB
OFfline subset





DB structure and data flow

- 3 main data classes held in 3 DBs on 2 RACs:
  - OMDS (On line Master Data Storage) [P5] holding all relational conditions and configuration data
  - ORCON (Off line ReConstruction ON line copy) [P5] holding data needed for data reconstrunction
  - ORCOF (Off line ReConstruction OFf line copy) [IT] holding data needed for data reconstrunction
- OMDS->ORCON: POPCON. Data selection and transformation to objects.
- ORCON->ORCOF: ORACLE streaming

Hardware

- Currently (10g):
  - 6 nodes
  - 10 disk arrays with 10 disks of 300GB
  - 2 disk arrays with 10 disks of 1TB (for backup)
  - 2 FC switches
- Next year (11g):
  - 4 nodes
  - NAS with 70TB
  - 10 GB switches
  - Sufficient for the next 3-4 years + f(technical stop)

+ standby DB

On line DB usage

- 3 main clients (DB access via OCCI):
  - DAQ (XDAQ/TSTORE/custom interface)
  - Trigger (XDAQ/TSTORE)
  - DCS (PVSS)
- Aim for client access through reader and writer accounts.
- Most of the data exposed trough web server
- Enterprise users would help to better control read access to DB.
- Certificates for authentication would help by getting rid of PW management

Running experience

- Very little unforeseen downtime
- Some SW needed to be “tuned” to support rolling security patches
- Several applications performance tuned with support of DBAs
- Streaming is very touchy
- Difficult to identify problem sources (DB or application)

Outlook

- Install new HW with 11g around October
- Test applications against 11g until winter shutdown
- Switch to new HW in winter shutdown and change from streaming to data guard

Summary

- On line DBs in CMS are running very well
- Replacing streaming by data guard will ease the schema management
- A more sophisticated authentication system would be helpful

Many thanks to the DB group for an excellent service!