



Luminescence Data Base

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- current setup
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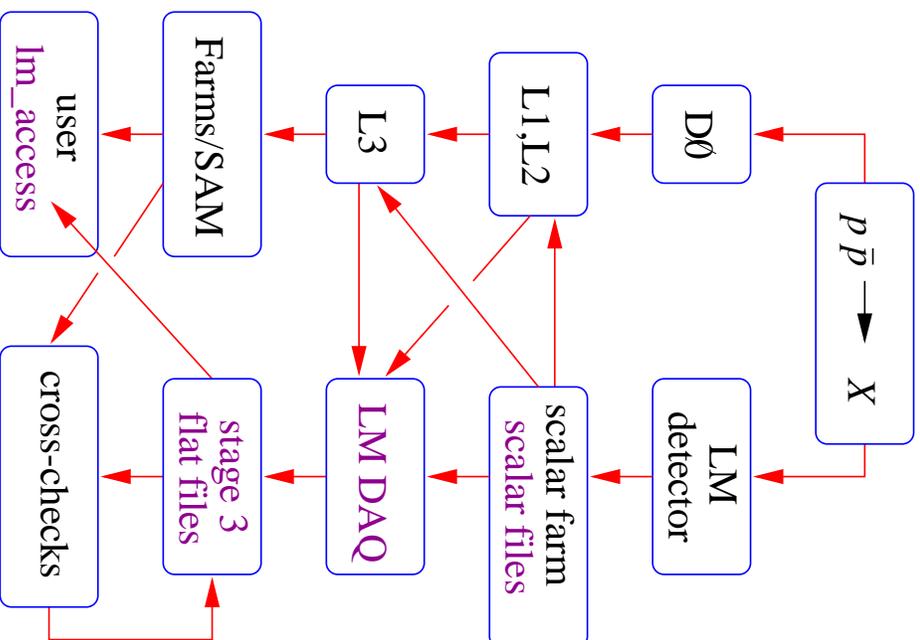


Lum. Overview

- count bunch crossings with interactions.
 - data acquisition at beam crossing frequency
- calculate and broadcast luminosity in real time to ACNET
- monitor prescales and deadtime in DØ trigger/readout to determine a corrected luminosity for each trigger path.
- generate run reports on delivered, triggered, recorded luminosity
- perform consistency checks to validate the luminosity for particular data sets.
- store information somewhere accessible to anyone doing DØ analysis



Current Setup



Relevant Components:

Raw data stored in scalar files

LM DAQ gathers all info needed to determine Lum, sends Lum to ACNET, generates reports

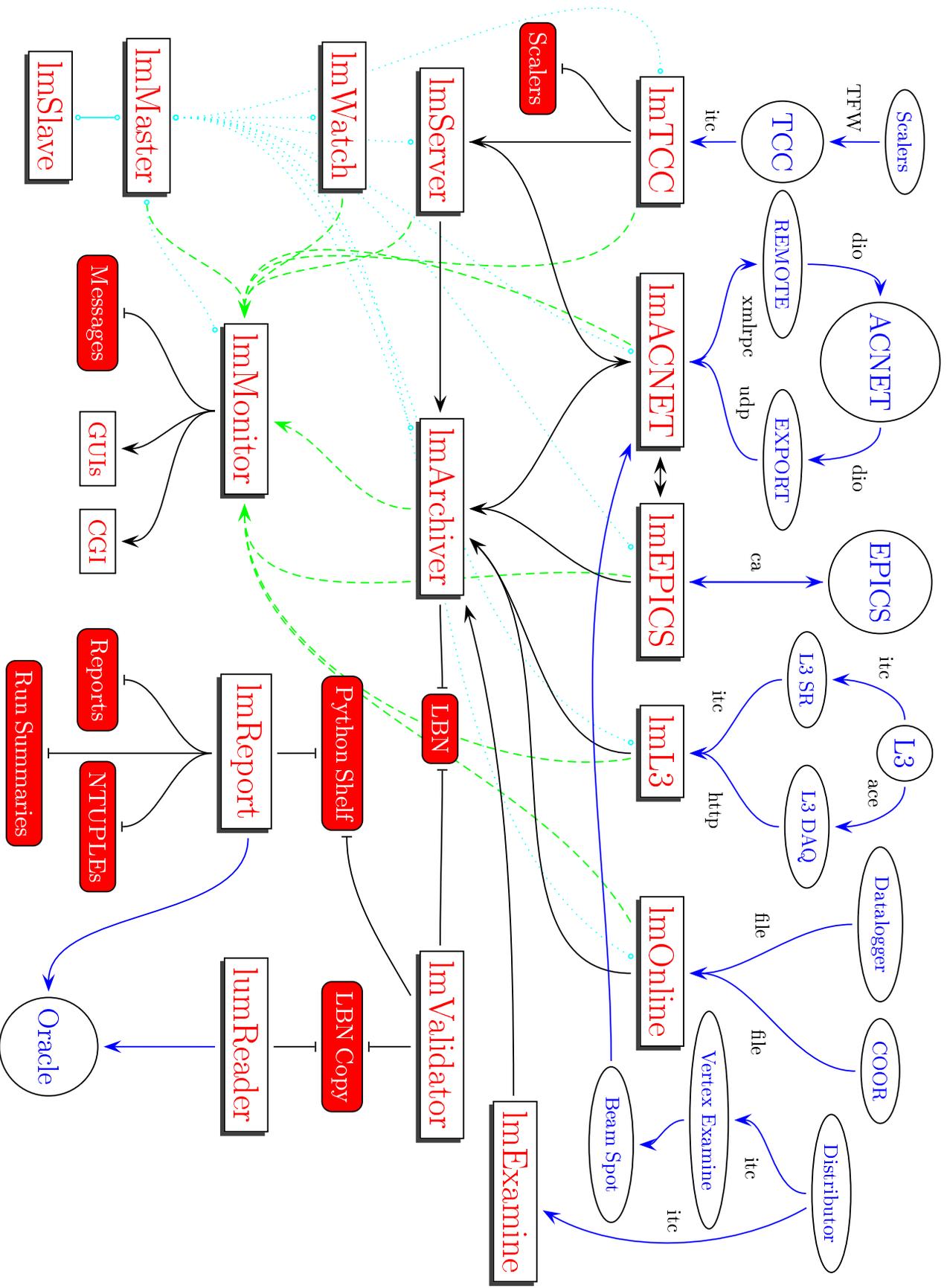
calculated luminosity stored in stage 3 flat files, files copied to user machines.

stage 3 files accessed by users using Im-access package.

something is usually missing so luminosity is frequently recalculated.



Luminosity DAQ





Data Base Expectations



- want flat file storage upgraded to a data base and want DB to be fast for the majority of users
 - What is the luminosity for the single muon trigger for the Moriond 03 data set?
- want access from off site \Rightarrow DB server
- ability to do web based queries
 - How much luminosity has been reprocessed with p14.05.01?
- want access to ALL information needed to perform ultra precision analysis
 - What is the luminosity for tick 32 when there are no temperature alarms in the liquid argon and there are no prescales on the forward jet trigger? (This part can be slow)

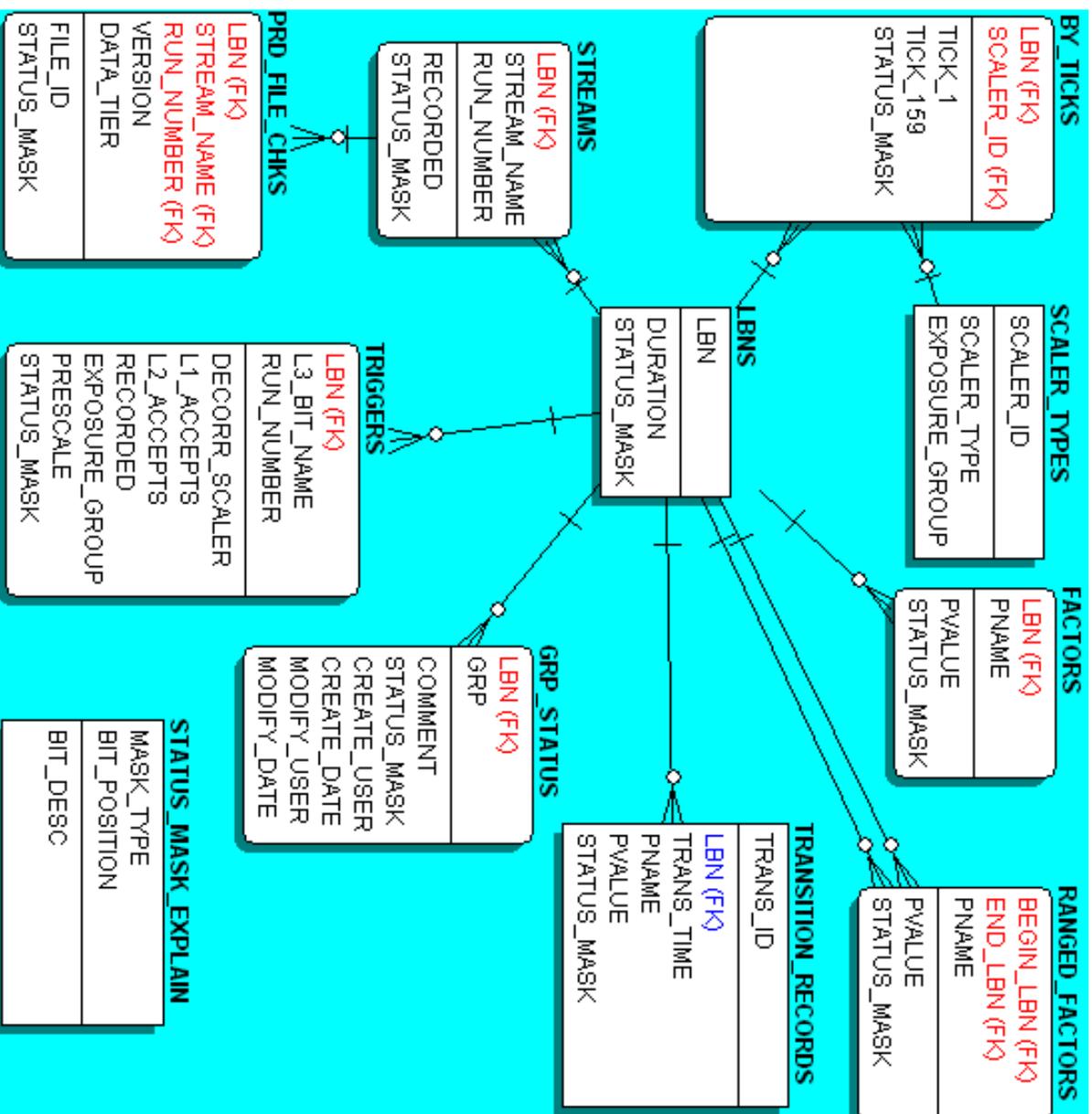


Data Base Status

- design \Leftarrow version 1 done
- design into Oracle \Leftarrow version 1 done
- python access/filling methods \Leftarrow version 1 done
- add filling methods to LM DAQ \Leftarrow in progress
- add accessing methods to lm_access \Leftarrow in progress
- test and iterate all of the above
- **data base server**



Data Base





Plans

- data base designed to input raw data and recalculate luminosity meeting criteria for ultra precision analysis
 - working adding filling methods to LM DAQ to input raw data
- above design expected to be very slow and is complicated
- In parallel:
 - adding a stage 3 file table to DB
 - filling with existing data in stage 3 files
 - putting access methods in lm_access
 - * **quickest route to testing full chain: fill-store-access**
- once fill-store-access is tested, start working on DB server.



Human Resources

Physicists

Heidi Schellman < 10% FTE, long term lum expert

Rich Partridge < 10% FTE, long term lum expert, DB experience

+ some at > 50% FTE for short term (possibly 1 long term)

Grad Students

Ana Assis Jesus > 50% FTE, long term new to DØ
+ some at > 50% for short term

It would be great to have a contact person in the CD with Oracle and DB server expertise. Expect ~ 20% FTE.