

# MINERVA @ FIFE

6/3/13

Heidi Schellman for the Collaboration

# History

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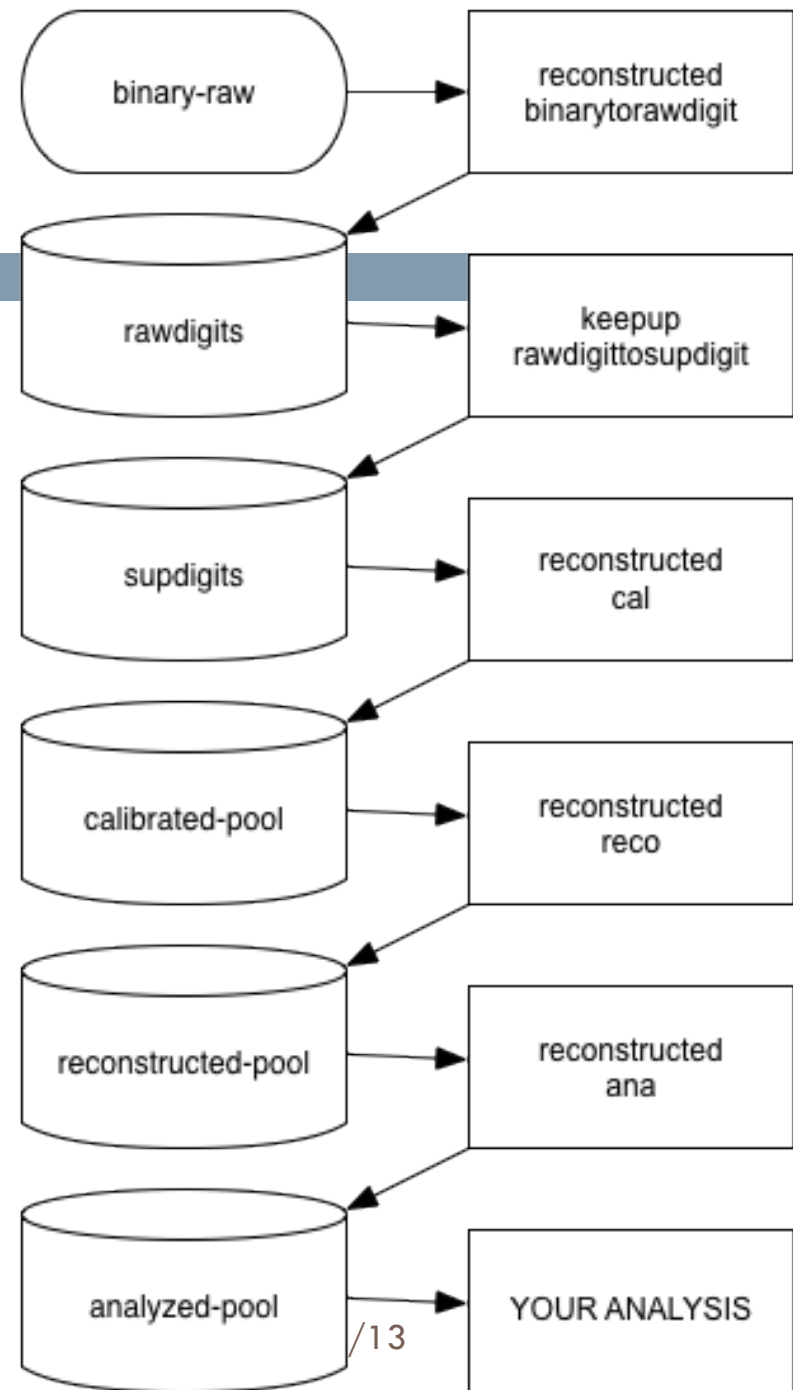
- First big IF experiment approved in 2004
- 2006ish - No Art – decide to use Gaudi like T2K/LHCb
  - ▣ POOL file format, COOL DB
- Windows DAQ → Linux in 2009-2010
- Get 5 if01-05 machines for analysis
- Minerva started taking data in Fall 2009
  - ▣ COOL DB doesn't work
  - ▣ SAM for file catalog
- Big data run 2010-2012 → data ->bluearc
- First major paper in Spring 2013

**We are often the first BIG user of new products.**

# Data size

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- ❑ 15,000,000 spills
- ❑ 27K 150 MB files/  
datatier
- ❑ 4 TB/datatier/version
- ❑ MC is up to 10 times  
larger
- ❑ All on bluearc



# Databases



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- Conditions and Calibrations
  - ▣ COOL → unCOOL!!! (Thanks!)
- Beam database (Thanks!)
- MINOS database
  - ▣ thanks to our MINOS friends
- SAM for file catalog (Thanks!)
  
- Note – we know our databases by name – not machine. Would be nice to have a standard mapping schema so we can communicate with sysadmins, dbas, users.

# SAM

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- We have been using old-sam since we started data taking in 2009.
- Had to tar up files, merge metadata, before writing to enstore.
- Automatic checks of the tar files run daily
- Not useful for analysis as the merged files are not what you really want
- Only used by experts
- Move to SFA/samweb in progress

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# Samweb

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- We are migrating our sam scripts to samweb
- Generally finding samweb to be easier to use
  - ▣ Occasionally find missing functions, Robert adds to the API
  - ▣ More documentation for API would be useful

# Small File Archive

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- Our files are small - need to merge to store until SFA came along.
- Getting FTS set up to use samweb and SFA to store our files
- Preliminary tests worked
- Need to do a big migration into SFA of all data from the first run -- ready for 300 TB?
- MC needs better metadata << our problem

# Grid

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- Use fermigrid
  - ▣ Almost too luxurious – hard to migrate offsite.





# jobsub

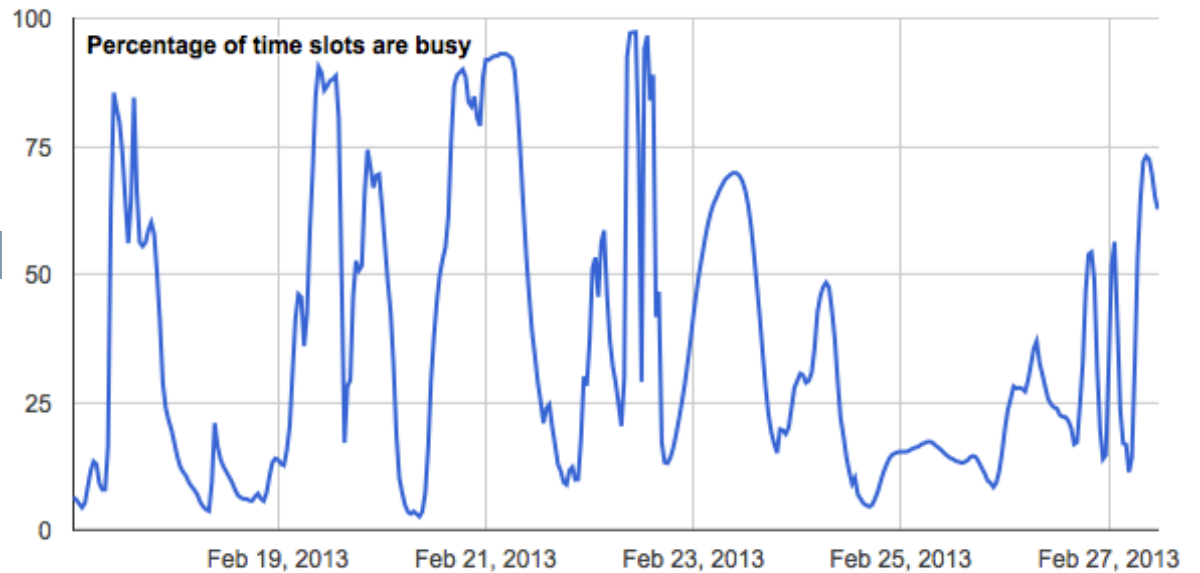
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```
cat minerva_jobsub
#!/bin/sh
jobsub $@
```

- ❑ Wrapped in minerva scripts
- ❑ Lots of joint development
- ❑ It does a lot! (Thanks!)
- ❑ Working on more samweb integration

# ifdh

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- In Feb-April
- Move to ifdh to get correct file ownerships
- Substantial problems with overload of bluearc
- cpn locks lock up
- Lots of work on transfer blocksize, lock strategy, rogue users/files (5TB file anyone?)
- Now running a lot more smoothly (Thanks!)

# Analysis

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- 20-50 active users
- ROOT based “anatypes”
- Currently IO bound
- Need to work on solutions for fast data analysis.
  - ▣ Grid is often not the best solution as CPU is wasted waiting for IO
  - ▣ But interactive VM’s with bluearc also not ideal.

# Summary

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- Lesson learned
  - ▣ Need to engage experiment/CD early in planning
  - ▣ Legacy decisions can be very awkward
- Major needs
  - ▣ Get the storage/caching solutions for files on tape into production
  - ▣ Work to run simulations and analysis offsite
  - ▣ Better analysis solutions