ATLAS Database Distribution Test Plan

LCG Database Deployment
and Persistency Workshop

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Outline

- Current status of ATLAS db access
  - Geometry and Conditions db
- Directions of development
- Possible test scenarios
- Summary

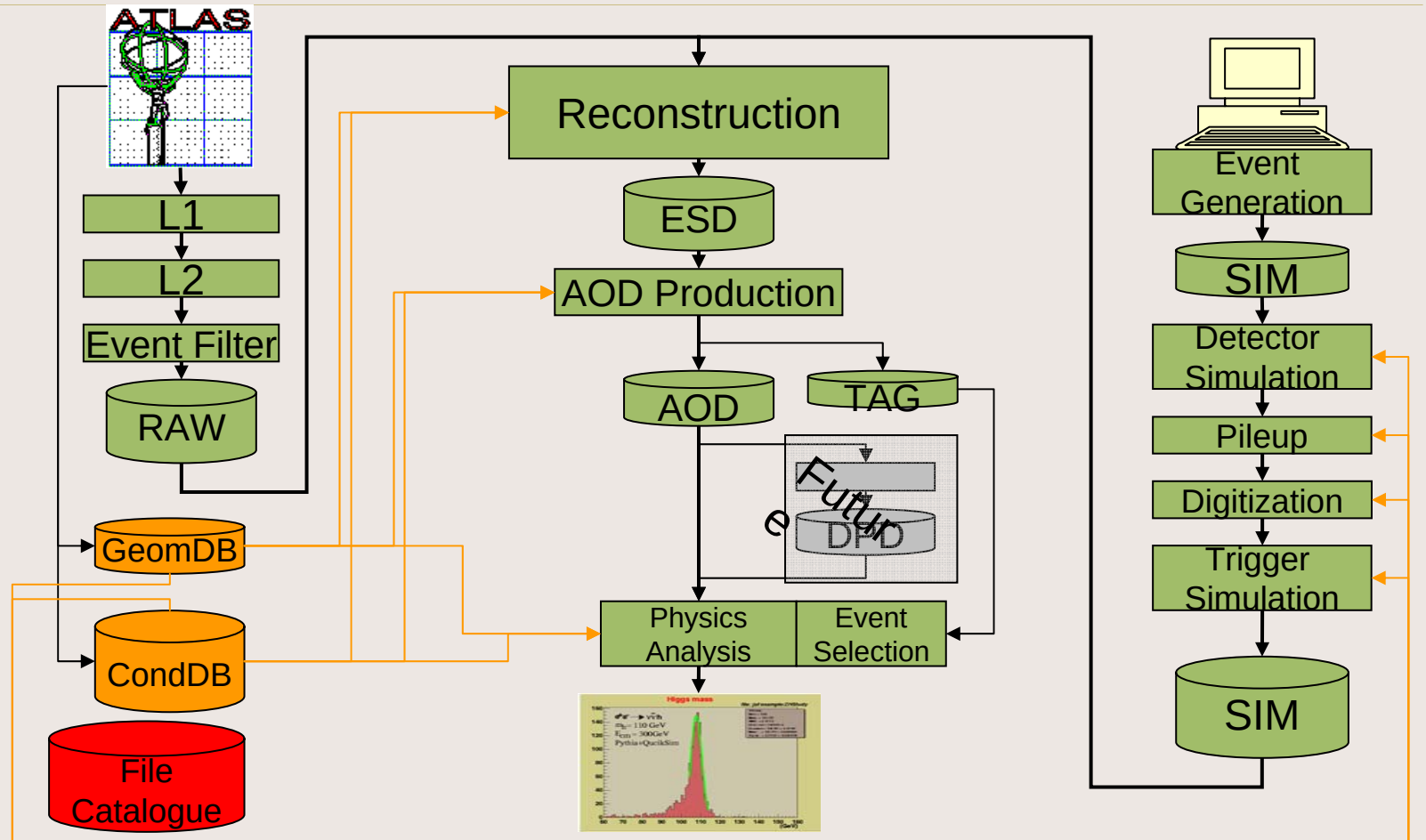
Geometry database

- Common access method
  - One single configuration for db access
- RDBAccessSvc
  - POOL based
  - RDBMS technology independent
- Is known to produce some load on the CERN databases
- Maybe distribute information with job
  - Custom tailered SQLite files

Conditions database

- Currently no consistent state
  - Subdetectors use different technologies
- COOL based in the future
  - COOL is now fully implemented in the ATLAS software
- Maybe COOL extensions by some subdetectors

ATLAS data flow



Access pattern

- GeomDB and CondDB write access from the pit
  - Can write to Tier 0 database
  - Some write access by remote callibration jobs
- Read access from Tier 0/1/2
  - Reconstuction and AOD production (Tier 0/1)
  - MC production (Tier 2)

Write Access

- Assumption: write access only at Tier-0
- CERN uses Oracle RAC
- Can RAC scale to cope with
  - Write access (mostly append)
  - Read access from Tier-0 reconstruction
  - Streaming to Tier-1 sites
- Needs confirmation!

- Is there a need for instantanous streaming?
  - Don’t think so

Read Access Scenarios

- All read at Tier-0 *(unlikely)*
- Tier-0/1 read at Tier-0/1; Tier-2 read at their Tier-1
  - Requires replication to Tier-1 (Oracle streams)
- Tier-0/1/2 read at Tier-0/1/2
  - Requires additional replication to Tier-2
  - Oracle / PostgreSQL / MySQL ???
- Which scenario can cope with the load?

Read Access Load

- Most ATLAS files will contain events taken with identical conditions
  - Mostly one db access at the beginning of a job
- ATLAS Geom-db access is in a state which can be used for tests
- ATLAS Cond-db access is under development
  - Not possible to get typical access pattern
  - Likely to be the bigger load

Test layout

- Run test on Tier 0/1/2 and acess db on Tier-0 / Tier-0/1 / Tier-0/1/2
- Use current standard ATLAS job (reco, AOD-prod, MC-prod) to check Geom-db
- Use COOL test tools to check Cond-db
  - Results can be extrapolated to ATLAS jobs by parameters like number of IOV lookups
  - Uncertainty by planed ATLAS COOL add-on tables

Summary

- Relevant database read access from ATLAS software from Tier-0/1/2
- Important to determine necessary replication depth
- Geom-db implemented
  - Maybe move to SQLite
- COOL not yet in full use
  - Prelim tests