WLCG Collaboration Workshop
22 January 2007

Conditions Database in LHCb
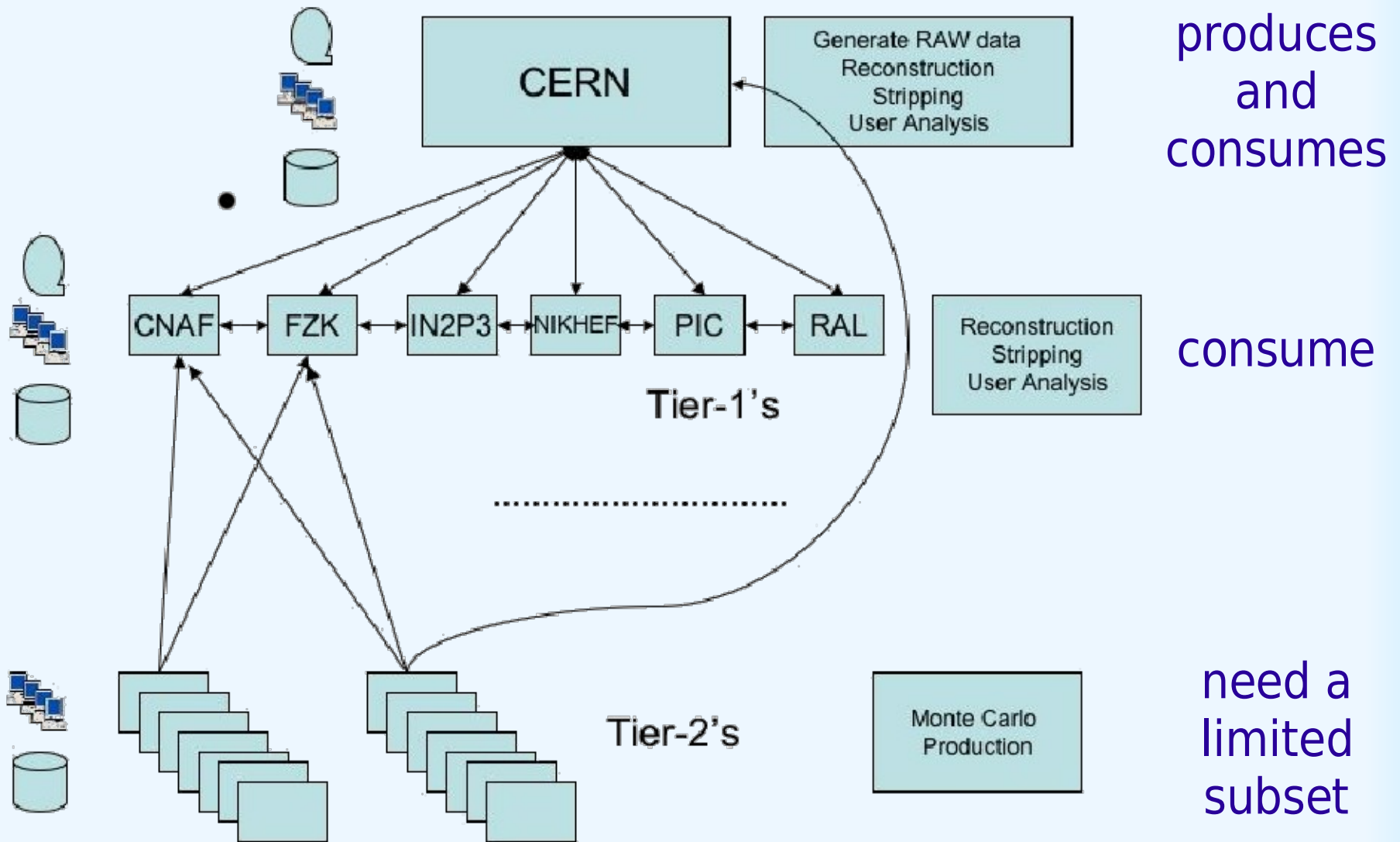
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Overview

- ➢ Introduction

- ➢ COOL

- ➢ LHCb Computing Model

- ➢ Deployment Model

- ➢ CondDB Service

- ➢ Status

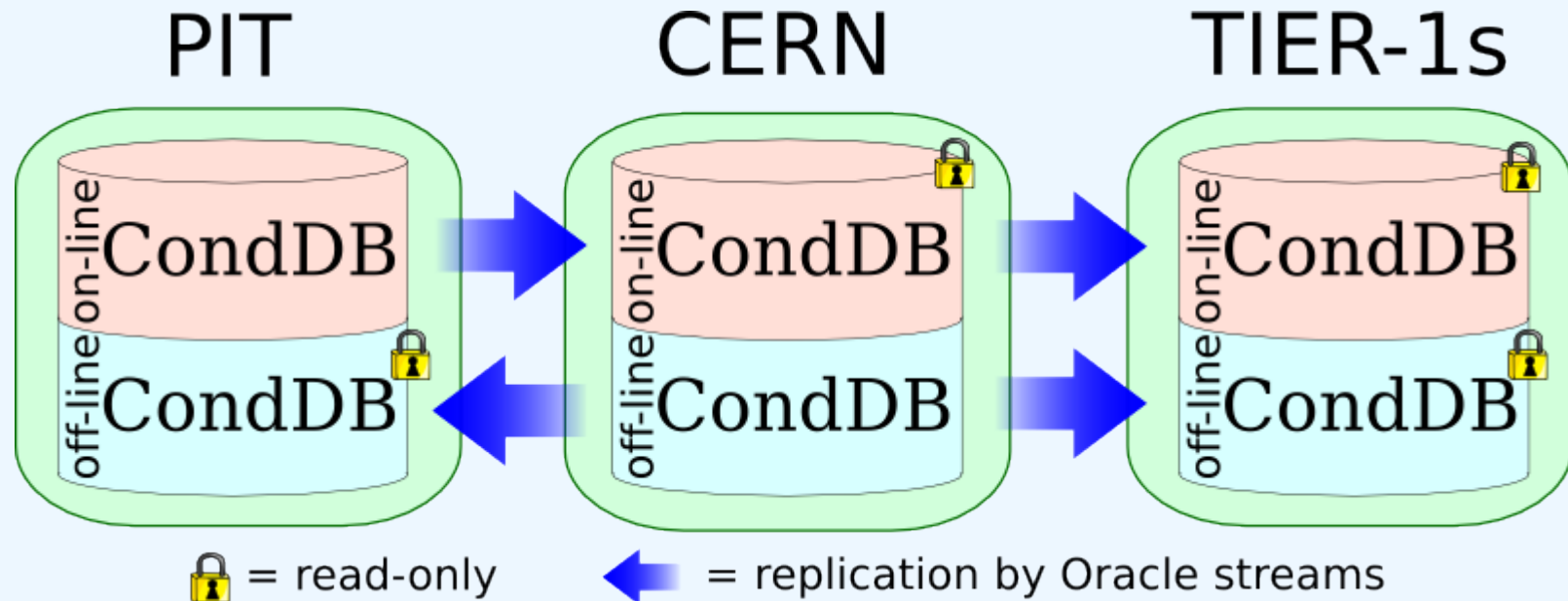- ➢ Conclusions

Introduction

- The Conditions Database (CondDB) is a vital element for a running experiment

  - Record and retrieve time-dependent informations that are *needed to reconstruct* collected event data

- LHCb uses the LCG developed library COOL for CondDB management
  (see http://lcgapp.cern.ch/project/CondDB)

COOL

- Project developed in LCG Application Area

- Pure C++ API for manipulation of IOVs (Intervals Of Validity)

- DB application implemented at client level

- Supported Back-Ends (via CORAL)
  - Oracle
  - MySQL
  - SQLite
  - FroNtier

LHCb Computing Model

produces and consumes

consume

need a limited subset

Deployment Model

PIT   CERN   TIER-1s

🔒 = read-only   ← = replication by Oracle streams

➢ Size:

    ➢ Few GB

➢ Write:

    ➢ PIT & CERN only

➢ Read:

    ➢ few hundreds conn. per site

    ➢ read 50-100 MB

CondDB Service Details

- Database application logic in the client
  - COOL creates and manages the schema
  - direct connection to Oracle
  - minimal work for DBAs (management)
- SQL Engine
  - Oracle at CERN and Tier-1s
  - SQLite based snapshots for Tier-2s
- Replication and back up of the database
  - 3D group

Status

- Preliminary version of LHCb CondDB
    - Installed on a test system at CERN
    - Replicated to:
        - RAL, GRIDKA, IN2P3
    - CNAF joining
    - Waiting for NIKHEF and PIC
- Replication tests successful
- Load tests ongoing

Conclusions

- ➤ Database application (COOL)

  - ➤ still in active development

  - ➤ but getting ready

- ➤ Replication

  - ➤ functionally satisfactory

  - ➤ performances adequate

- ➤ Hardware

  - ➤ agreed configuration seems OK for the initial production phase