

Data Management in Lhcb

Current status



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Gaudi: The Philosophy

- Separation between the transient and the persistent data representation
- Separation between event and detector (conditions) data
- Possibility to foster multi-technology persistency solutions



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Managing Data

- ↖ Managing data itself (Physical view)
 - ↗ Storage mechanism
- ↖ Manage the access to the data (Logical view)
 - ↗ Optimize for access patterns
 - ↗ Resources
 - ↗ Speed

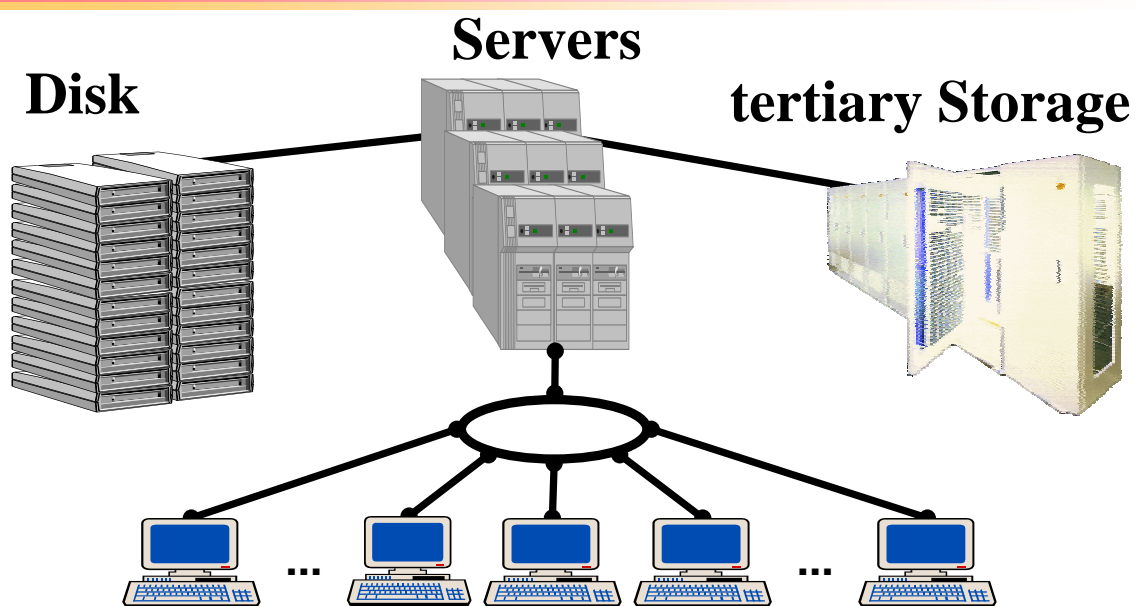


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Physical View

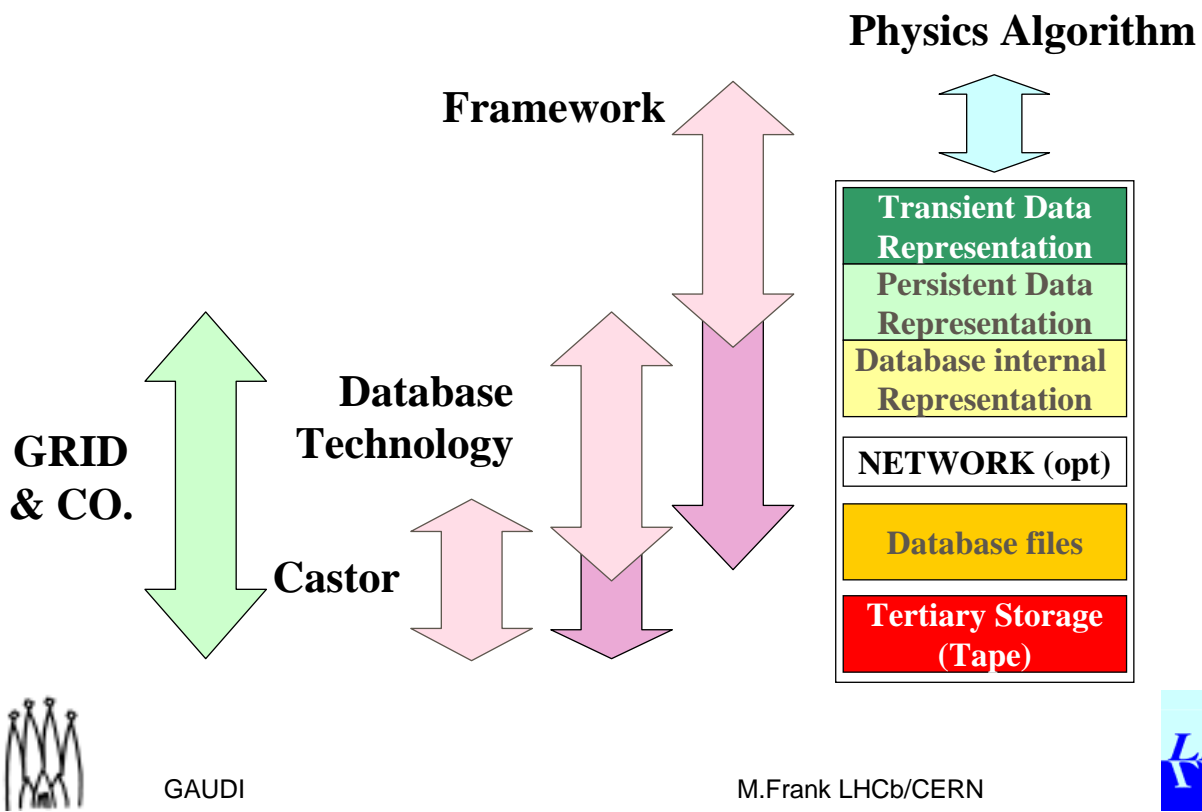


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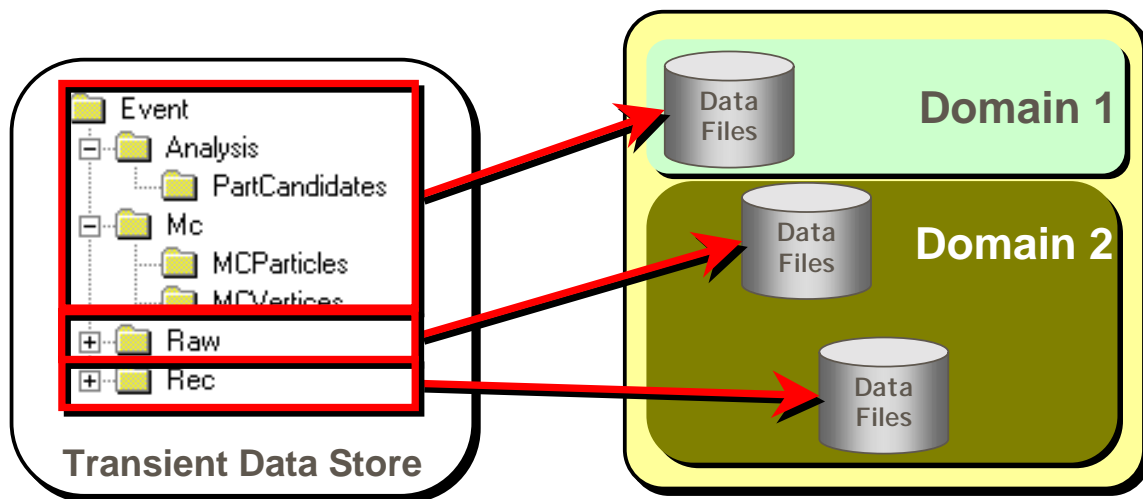
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Logical View



Logical View: Transparent Access



Data Types (Used Today)

↖ What kind?

- ↗ Event data
raw, reco,...
- ↗ Catalogue data
 - Bookkeeping of datasets
 - Indexed event tag collections
- ↗ Detector conditions Indexed by time

- **Today's solution**
- **ZEBRA Tape / Castor**

- **Oracle**
- **Non Existent**
- **Free format text files**



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Partially implemented,
not tested on bigger scale

- **File oriented**

- **RDBMS**

- **RDBMS with XML support**



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Plans For Next Summer

- ↖ LHCb milestone
 - Data Challenge: 10^6 events (2 weeks)

- ↖ Event Data
 - ↗ Use ROOT + Castor

- ↖ Evaluate ORACLE / ODBC

- ↗ Event Collections
- ↗ Bookkeeping
- ↗ Detector data

RDBMS

- Searchable: SQL
- Indexing

ODBC

- Stay open

Possible projects



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Architecture Project

- ↖ Study data management problem as a whole
 - ↗ Find possible problems
- ↖ Understand the scope
- ↖ Study the model
- ↖ Understanding the impacts
 - ↗ GRID



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