Conditions Data at CDF/D0

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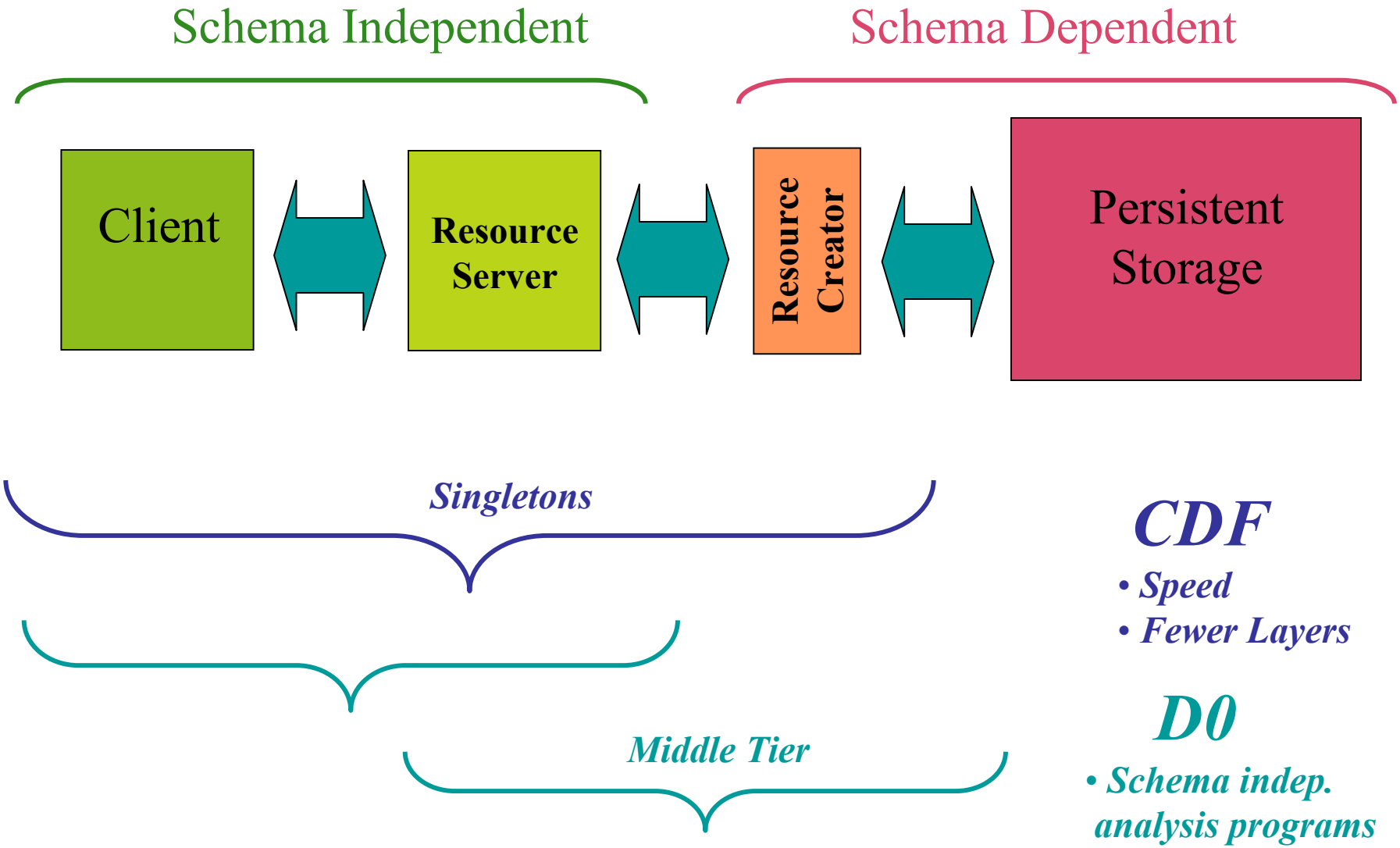
What choices were made and why?

Choice of Persistency

- Looked at Objectivity, chose Oracle.
- Oracle supported by Lab, client level access for all Fermilab experiments.
- Use Oracle Designer 2000 tool to design specific schema's.
- Use Fermilab CD mandated (wisely) system of development, integration, and production servers.
- Actual hardware purchases and setup left to experiments under certain restrictions by Fermilab.
- Fermilab able to provide of order 3 DBA's shared among experiments -> queue for support.
- Maintain online and offline servers for DOE security reasons. Also need different optimizations.
- Use freeware (text, MySQL) for read-only exports.

Access to the Data (C++)

General for HEP



CDF

- *Speed*
- *Fewer Layers*

D0

- *Schema indep. analysis programs*

Access to the Data (Interactive)

- Web based browser
  - Supports data mining
  - Look up privileges
  - Understand connections
  - Select data sections, conditions
- ROOT GUI using same underlying C++ API.
  - Used for validation of calibrations
- Java based access for online operations.
- Perl DBI access for export of calibrations for trigger.
- Simple SQL scripts.

Calibration Operational Structure

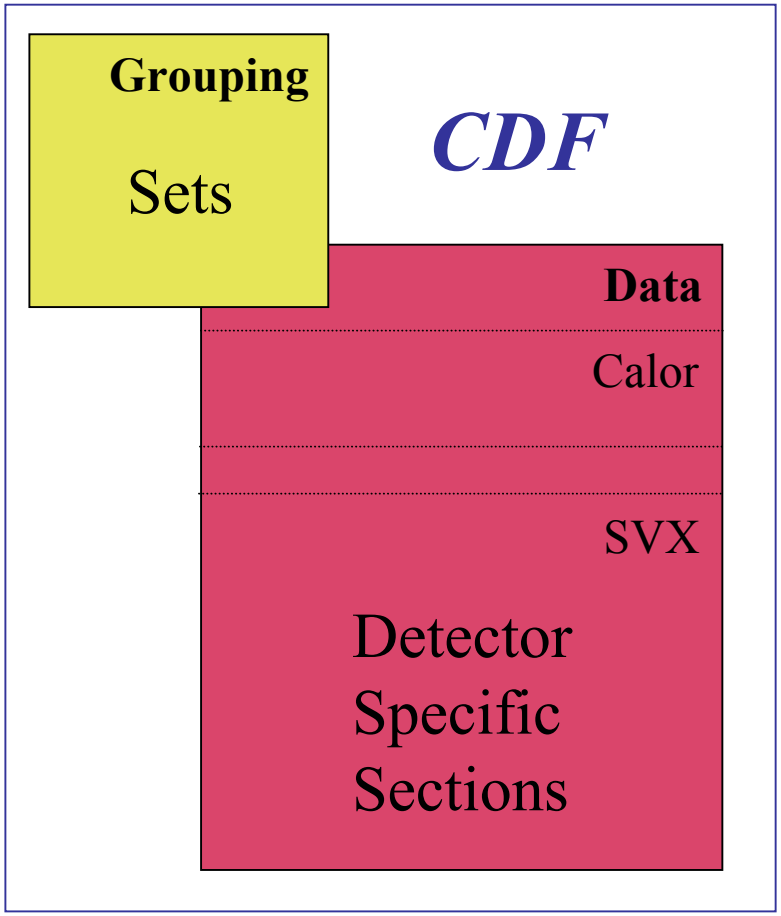
CDF

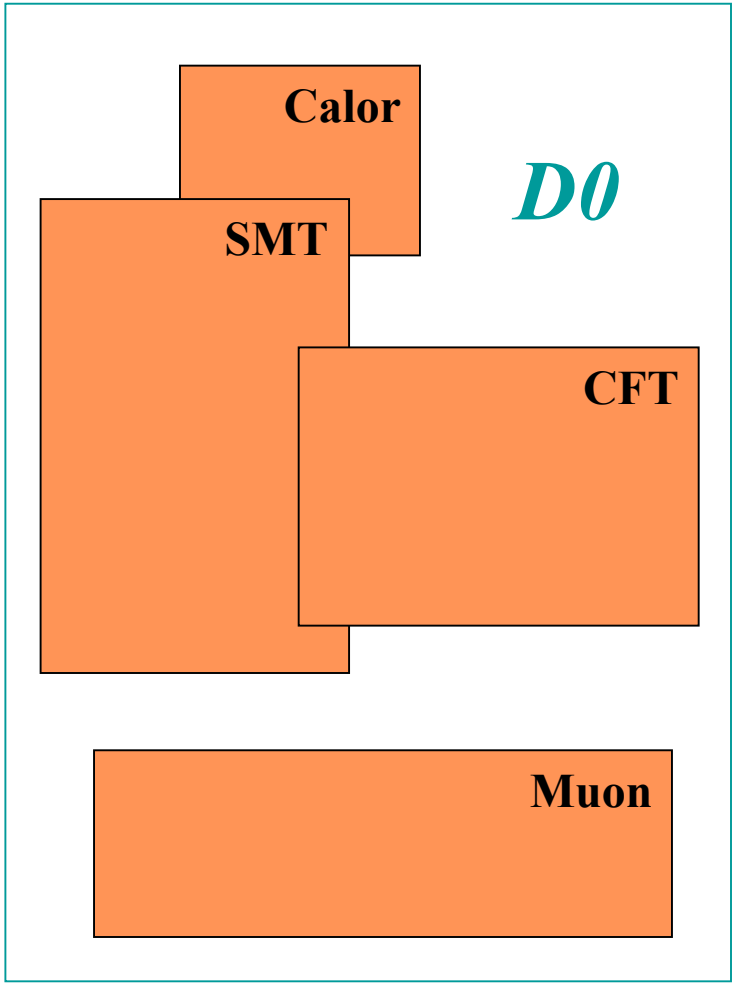
- Unified schema for all detector components.
- Simplified detector sections maintained by detector groups.
- Common interface layer in DB
- Groupings defined in DB, connected to offline processing.
- Data entry online.
- Calib specific software
- Replicate all data offline (chosen option)
- Distribute through DB copies (Oracle/Mysql)
- Database stores relations independent of external objects.

D0

- Non-unified schema.
- Detector groups responsible for entire calibration schema.
- Common interface layer in middle tier.
- Groupings defined in middle tier.
- Data entry online
- Data/Calib through middle tier.
- Replicate only needed data to offline.
- Distribute through middle tier server copies.

Similarities of Scale in DB

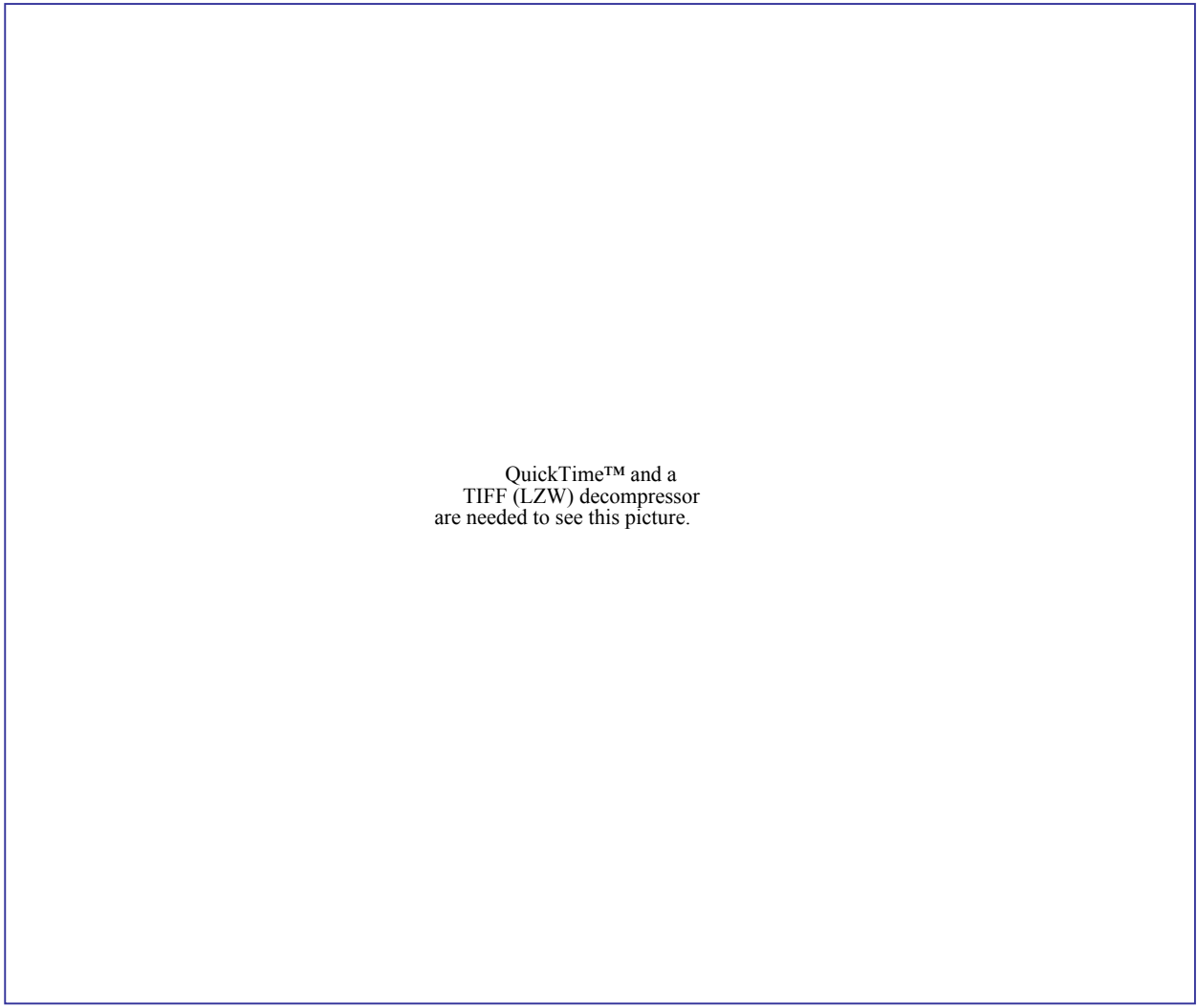




- Both have totals of order 100 tables
- Both have sizes of order 100 Gb (2 yr)

Personnel Organization at CDF

- Management NOT split between online-offline.
- Approximately same number of FTE for development and support.
- During commissioning (2000-2002)
  - Needed ~3 FTE of programming support.
  - Needed ~2 FTE of DBA support
  - Needed ~2 FTE of system support.
  - Needed ~(6x 0.5) FTE of schema support
  - Needed ~6 FTE of detector support.



Other Conditions Data

- Trigger setup
- Temperatures
- High voltages
- Monitoring results
- Run quality and Validation results
- …

All Present, but separate from calibrations.

Nominally connected by some time index (run, date, …)

Could be done better in LCG Conditions DB!