CDF Databases

Andrew Hamilton

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What is a Database?

Data organized into 'tables'.

You need a database to do three things:

```
input data
store data
retrieve data
```

A Relational Database: tables are *related* to each other with columns that contain common information, like the name of a person.

The CDF Database Applications

A "application" is just a set of tables. Loosely refered to as independant databases, ie. "the calibration database".

Hardware: Configuration parameters of hardware.

Run: Run conditions and configurations.

Trigger: Trigger criteria and paths

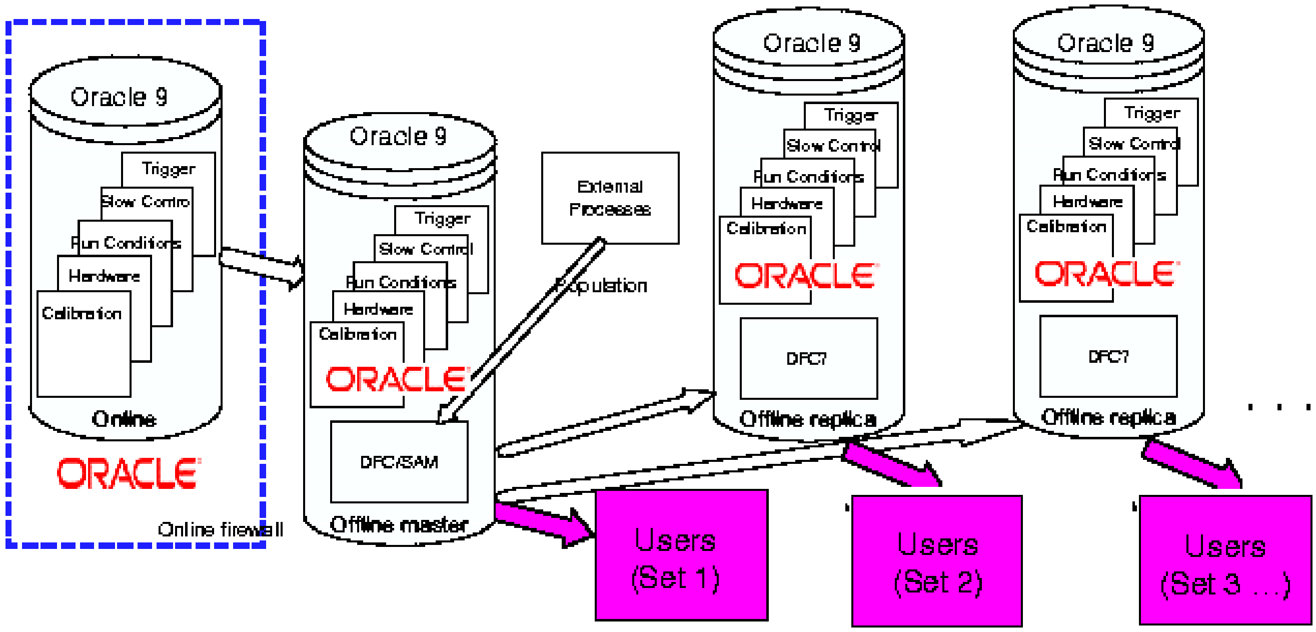
Calibrations: Detector calibration values.

Slow Controls: Long-term monitoring like temperatures.

Data File Catalog: An index of all the data files.

SAM: A "super-DFC"

Current CDF Database Distribution



Real DB Instances: cdfonprd, cdfofprd, cdfrep01, cdfrep02

Virtual DB Instances: cdfofread (provides automatic failover)

Future CDF Database Distribution?

Put database replica's offsite?

Reliable replication is VERY important, but it's not a trivial task.

New 'Streams' replication enables offsite db instances by replicating from a replica, not from cdfonprd.

Should offsite instances be ORACLE or Freeware (mySQL, postgreSQL)?

`size`
`future licence fees`
`future support`
`Kerberos security`
`manpower`

Computing division proposed a "multi-tiered caching server intermediate layer" as an alternative to offsite db instances

Why does the DB care about MC Production?

Small inefficiencies in jobs run from large clusters could paralyze the database.

```
->73  CALIBRUNLISTS      <-  (0.05 seconds per access)
  16  CALIBRUNLISTS
  14  PARENTS
   1  WHASLEWING
   1  WHAOFFLER
   1  VALID_SETS
   1  USED_SETS
-> 1  SVX_RUNDATE_VIEW   <- (can cause problems)
-> 1  SVX_CONFIGURATIONS <- (can cause problems)
   1  SISTRIPDH
-> 1  SICHIPPED          <- (23 second access!)
   1  SET_RUN_MAPS
   1  PPRLINERESPONSE
   1  PHASLEWING
   1  PHAOFFLER
   1  PEMOFFLER
   1  PASSES
   1  PASSCALIBS
   1  OFFSCL
   1  CHASLEWING
   1  CHAOFFLER
   1  CEMOFFLER
   1  CALL1PEDS3
   1  CALDIGITOGEV3
```