CDF Databases

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Outline

- Achievements
- Work items (BigList)
- Plans
- Machines
- Manpower
- Ruth's Quiz

Goal: Max Physics, Min Support

$\boxed{\text{Understand CDF}}$

Achievements

- Unified level 1/2/3 schema (L3 built from DB for MDC, L1/L2 tests into hardware)
- Production/Integration/Development Databases
- Start Run Conditions
- Calib running and some validation but not to Production
- MDC2 use of File Catalog
- Procedures and Education
- User community

BigList Items

- Calib DB Schema (Jack/Dennis/Mark/Jim)
- Replication (time stamps) (Mark/John)
- "Books" for Data File Catalog (Dmitri/Eric/Jim)
- CodeGen Mods to include more "Designer" functionality (Dennis/Jim)
- OEM/Monitor (Nelly)
- Cut Databases (See Phases): go to 8.6.2 and freeze (Nelly, Julie)
- Mods to File Catalog: and review (Dmitri/Jim)

This proved we needed more than 2 Dennis' and 2 Jim K's.

BigList Items

- Cut rates and “sub” rates (views)
- Database Size reviews
- Need to understand Loads

Plans:Structural

- Code and Database Review (Cindy,Jim/Dennis)
- Database Validation (Dennis)
- Database Simulation: MDBC? (Cindy,Jim, Dennis plus all)
- Review Emergency teams, scenarios, actions (Cindy)
- Define 24/7 in light of Control Room:Merged Operations
  - Tev is not 24/7, so Online has scheduled breaks
  - Offline mainly 24/7, but with replication, can reduce load (the 90/10 rule)
- Backups: Ultimately Falls on DBA

Phases

	Phase 1 7/15		Phase 2 8/1	
Database	Machine	Type	Machine	Type
cdfofprd	cdfora1	Sparc5	cdfora1	Sparc5
cdfofint	cdfora1	Sparc5	cdfora1	Sparc5
cdfofdev	cdfdev	sgi	cdfdev	sgi
cdfonprd	b0dau35	4500	b0dau35	4500
cdfonint	b0dau35	4500	b0dau?	3500
cdfondev	b0dau30	sgi	b0dau?	3500

		Phase 3 8/15	Phase 4 12/1
Database	Machine	Machine Type	Machine Type
cdfofprd	cdfora2	4500	4500
cdfofint	cdfora1	Sparc5	4500
cdfofdev	cdfdev	Sparc5	4500
cdfonprd	b0dau35	4500	4500
cdfonint	b0dau?	3500	3500
cdfondev	b0dau?	3500	3500

Also: linux validation database (ncdf16) and linux warehouse for export.

Who's Who

Schema	Physicist(s)	dBa
Hardware	Bill Badgett	Nelly/Julie
RunDB	Bill Badgett	Nelly/Julie
Trigger	Alexei Varganov	Nelly/Julie
	Kirsten Tollefson	Nelly/Julie
Calib	Jack Cranshaw	Nelly/Julie
FileCat	Dmitri Litvintsev	Nelly/Julie
	Eric Wicklund	Nelly/Julie
MCS	(Jack Cranshaw)	M. Vittone
	(Larry Kirsch)	D. Box
		Nelly/Julie
(Module)		S.Jones
(Matrix)	Sidet	D.Ritchie

- Data Quality not yet fully defined
- needed Donatella (Trigger Data entry) and Randy Herber (display of Results on DB).
- Team to be able to do cuts of any schema

Manpower

Cuts needed the full team – this is required to

- Understand the operations
- Automate the operations
- Debug

Coherent needs are deadly
$\rightarrow$ Load simulation can help but needs manpower
May reduce peaks but increases integral FTE
Leads to a more stable situation
To predict FTE: Need Engineering Run

Manpower

Extrapolate from the recent experience:

- 1.5 dBa FTE to review, cut, debug
- 1.5 dBa FTE to monitor and improve tools

The combination of Nellie, Julie and Diana is proven effective!
In addition, with more use of the Databases we use 1 DbA to handle "shoot the messenger": Problems that are cited as database, require a dBa to investigate but are not.
Cuts will be come harder as we get running (require more validation testing)
Development of tools and reliability is likely to take years.
A steady state of 3 dBa's to accomplish what we need - plus Online

Deployment Thoughts

Deployment: A CDF DBA, supportDB, Join Project interaction
$\rightarrow$ Proposal: DBA of the Week at CDF

- Rotate duties to allow quiet development on 8 and feedback to the group
- Reduce single point of failure and spread expertise.
- Interaction with D0 on 8, but keep separated.
- Allows emergency/vacation cover

Ruth's Quiz

1. **Crest of Wave**
   - Each phase
   - Run Startup
   - Development support
2. **Experience**
   - simulate (needs development and DBA manpower)
   - consultancy may help (Buy experience)
3. **Backup** commissioning, validation, MDBC
4. **Turnover** DBA @ CDF, Schema Team
5. **Offsite** Replication helps 24/7 (90/10) Pacific Rim, Europe, America

6. **Sizes**

Hardware and RunDB	10 GByte
Calib	20-2200 Mrow (.06-6.6 Gbyte)
Trigger	10 Gbyte
MCS	60 GByte (Unfiltered)
File Catalog	10 GByte

Kevin Mc Farland "We know the order of magnitude of the log of the silicon needs"

7. **Transaction Rates**

- Online: 1Mbyte in calib run, also Begin Run.
- Offline: MDC2 results, need to add user load, need more use!

8. **Simultaneous Downtime** Like backup question

9. **Online Share** See Umesh

10. **Schema and Responsibility** See slide

11. **MOU** Essential to have Commissioning Run to Determine

Summary/Conclusions

- Much Progress, Much to Go: The tangible almost done
- Intangibles: performance, stability

DbA Time and stability Mean

- less exotic events due to detectors and associated man-years lost
- less need for fudge factors (like 2.5 for tracking errors)
- Solid physics results

Deep Thanks to ODSDB for their help!