BLAST Database Project

Beam Lattice Alignment Survey Tracker Database

Status and Plans

Dennis Box CD-CEPA-DBS

Jan 28 2004

The Problem:

Magnet properties and alignment data are used for modeling and tuning tevatron performance. This data is collected by technicians and physicists using methods convenient for them.

Collecting this data into a central location for Accelerator Division use is urgently needed.

Previous Solutions:

MTFA database

- Technical Divisin Magnet Test Facility Database
- Sybase on Sun Server, very old, unsupported by vendor(s)
- 200 tables, well documented
- Conventional Magnets Only
- Could be modified to take Superconducting Magnet data but would have to upgrade hardware and software
- Not well suited to Accelerator Division Needs

Previous Solutions:

(part 2)

RIM database

- Accelerator Division Magnet Properites & Position Database
- Proprietary RDBMS running on VAX
- 35 tables, poorly documented
- Data seems well suited to Accelerator Division needs
- Input and access is limited

http://www-ap.fnal.gov/TeVMAGNETS/rimquery.html

- Attempts to integrate this database with Lattice Files, Analyis Software and Convenient User Interface (A 'Portal') largely failed.

Avoid The Following :

The Previous Efforts Delivered Sub-Optimal Results to Accelerator Division Modelors

The Consensus Is That They Were:

- Over Ambitious
- Under Defined
- Under Resourced
- Lacked 'Buy In' from Stakeholders

We Should Learn From Our Mistea^H^Hakes

Over Ambitious

The project will be divided into multiple phases, each of which will be an improvement over the previous state. It will be able to gracefully wind down and restart the at logical, useful points should priorities or resources change .

Under Defined

REQUIREMENTS and USE CASES!

See http://home.fnal.gov/~dbox/BeamsDiv/use_cases.html

Under Resourced

We think we have them in light of above.

'Buy In' from Stakeholders

rA Politcal/Management Problem. If they don't think its important, we don't either. They think it is.

Phase 0

Meet the hardware/software prerequisites to implement the project.

Prototype, development and production environments and DBA support.

-

a) Establish software requirements. Sybase running on Linux has been suggested, if this is accepted then licenses for Sybase server and Red Hat Advanced Server must be secured.

b) Establish hardware requirements. Purchase or identify the hardware and configure it as needed. (does BD, TD do this or CD-CSS-DSG?)

c) Assignment of support task to DBA who accepts this role. Developers users, and DBA have to form working relationship.

d) Consensus of all stake holders wrt the proposal including scope of (initial) database content

Phase 1

Port of RIM Database from VAX to Modern RDBMS

-35 Tables Ported to Sybase and PostgreSQL

Development Environments

-PHP/Web accessible: http://fndapl.fnal.gov/~dbox/php/blast.php

-Create Data Dictionary (table & column definitions, units etc)

-Enable Constraints Where Obvious (duplicate rows....)

-Use Cases Completed

- View all comments on magnet
- Spare Magnet List
- Coefficient/Location Report

-Use Cases Under Development

-Input New Survey Data

-Move/Replace Magnets.

Phase 2

Refactor Database Schema

-Remove Duplicate Data (Normalize)

-Change Column/Table Names

Where it makes sense - no 6 character limit!

-Foreign Key Constraints

-Views Reconstruct Older Schema

Where convenient for users

Phase 3

This is where "It would be nice if....." gets translated into concrete Requirements and Use Cases, then Implemented

Possible enhancements for phase III which have been mentioned, and
need to be better defined to make a reasonable work estimate include:

- Lattice ordering information
- Other data sets
- Lattice configuration/definition capability

These are sure to change....

Status

Phase 0 Complete

- Production: Sybase server behind AD firewall
- Development:: Sybase server behind AD firewall
- Also PostgreSQL server not behind firewall

Phase 1 : Ongoing

- Data Validation is a Big Job!
- Data Dictionary ongoing
- About 1/2 Use Cases Completed