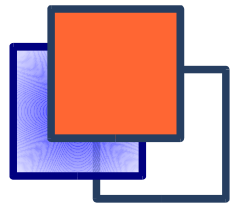


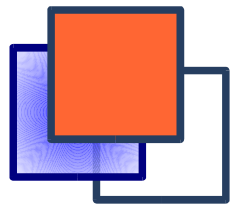
Database WG Report

- Combined effort for barrel and forward pixel
- CMS specifies four databases
 - Equipment
 - Configuration
 - Conditions
 - Construction
 - Lots of overlap, so we use one DB for all four purposes



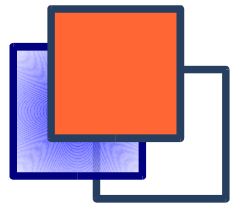
Data Entry Methods

- Using DB Schema/API developed for HCAL
 - Java API for entering and retrieving data
 - Test stands write XML which can be uploaded “in bulk”
- Web application for some entry and all viewing uses Java API
- Other access methods to come
 - C++, scripting for correlation analysis



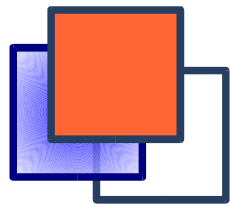
Construction Database

- Current emphasis (needed soon)
 - Learning to use tools, work initially slow
 - Responsible people (core group)
 - FNAL: G. Lukhanin, Y. Guo, L. Lueking, U. Joshi
 - Vanderbilt: E. Vaandering
 - Other groups (DAQ, DCS, Offline) will need to use DB as well, core group will advise



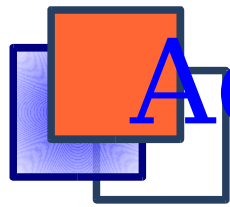
Construction DB Status

- Bulk upload
 - ROC and sensor wafer tests are pilot projects
 - Table formats finalized
 - XML file format finalized
 - Semi-automated upload done
 - Fully automated upload coming soon
 - ~3000 XML files per wafer
 - Using this experience to develop similar process for TBM wafers, plaquette, and panel tests



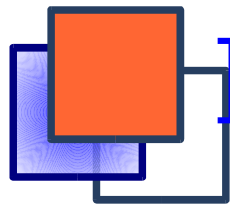
Construction DB Status

- Web interface
 - Pilot project with parts arriving at SiDet
 - Widgets to enter and track Be panels, VHDI, and HDIs
 - Able to view all info about these parts
 - Manual data entry tracks through testing, validation process
 - Again, learning to deal with tools eases later development
 - Next task to support is ROC/Sensor mating and plaquette assembly. Rudimentary at first, later will help with selection



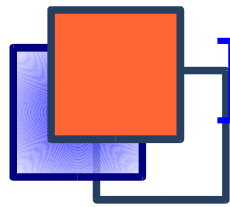
Activities During Workshop

- The core DB `group is small and communicates regularly
- Much of our time during this workshop was spent meeting with the other working groups
 - Better understand their needs
 - Figure out what data they need access to
 - Determine which tools they will be using to insert and retrieve data



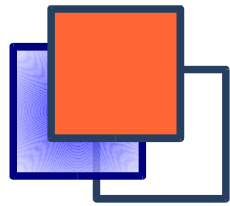
Discussion w/ Kirk Arndt

- Kirk is with Purdue, doing plaquette assembly and testing
 - DAC settings and pixel tests will need to be bulk uploaded
 - ROC/Sensor relationship is specified to the bump bonding vendor and must be checked on return
 - Vendor mistakes must be corrected in the DB
 - We will provide a web interface for these steps
 - We may organize a Purdue site visit in November to better understand their work flow



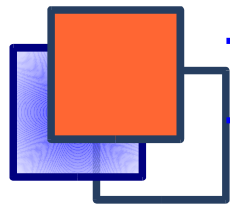
Discussion w/ Alan Hahn

- Alan discussed SiDet personnel needs
 - Reviewed the prototype web interface
 - A number of minor suggestions related to SiDet work flow
 - SiDet will repeat some tests done at Purdue
 - Would like to see if there are changes
 - Understand source/time of changes
 - Alan asked to have a person (TBD) who would be able to work as a liaison between SiDet and the database (see next page)



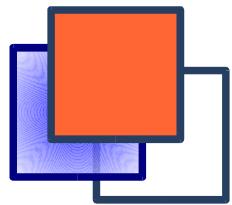
Mining Data

- During discussion with Alan, we discussed getting arbitrary data out of the DB
 - E.g., want to analyze correlations between defects
 - Web interface will be set up to do most common reports, but we need arbitrary capability
 - Generic nature of DB makes this somewhat difficult
 - Examples (PL/SQL and Java) will be provided



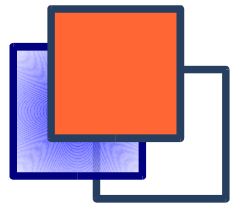
Discussion w/ XDAQ WG

- Initial concern is getting data out of DB
 - Large amount of data, one byte/pixel
 - Time to do this is unknown (determined by run control)
 - FRONTIER is a possible method for retrieving data
 - Data is cached
 - XML configuration file describes mapping between DB/SQL structures and C++ Object
 - Current plan is one binary object/ROC
 - Can run-run differences be stored to minimize space?
 - End of '05 test stand ready.
- Writing later. XML files a possibility



Discussion w/ DCS WG

- PVSS comes with its own database
 - Some data must eventually be transferred into Pixel online/offline DBs
 - Some effort by CMS PVSS group to support this
 - Quite likely some extra work from Pixel will be needed to map PVSS to Pixel SQL Schema



Other Work Ahead

- Advancing construction task highest priority
- Configuration tasks
 - Add FED, FEC, cables, etc.
 - Develop procedures to configure devices
 - Borrow from/work with tracker at large
- Conditions DB
 - Interface with PVSS
 - Calibration procedures



Requirements

- Documentation of API and XML format (in progress)
- Must be able to validate that uploaded data matches inputs
- Web interface to browse/visualize all data
- Examples to allow physicists to mine data



Milestones

- Permanent DB instance – 1/5/06
- ROC wafers (3) data uploaded – 1/15/06
- Version 1 of webapp provided to SiDet/Purdue – 1/15/06
- Webapp able to do ROC/Sensor mapping – 1/31/06
- 2nd version of DB deployed – 3/8/06
- 1st full version of webapp released – 3/8/06
- Integrated test stand (FEC/FED/TTC, XDAQ) testing – 10/26/06
- Deploy system software at CERN – 7/3/07