ILC-doc-306-v1

Electronic Logbooks for Use at FNAL ILC Test Areas

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ILC SRF R&D Meeting

June 29, 2006

The Committee and the Web Site

Name	Affiliation
Gysin, Suzanne	FNAL CD/AMR
Harms, Elvin	FNAL AD/A0 Photo Injector
Kissel, Wally	FNAL AD/Operations
Kutschke, Rob (chair)	FNAL CD/CEPA
Nelson, Janice	SLAC ILC/Admin/Operations
Patrick, James	FNAL AD/Controls
Saunders, Claude	ANL
Tartaglia, Mike	FNAL TD/Magnet Systems

URL: http://cd-amr.fnal.gov/ilc/LogbookEvaluation/LogbookEvaluation.htm

This site has minutes of meetings, URLs to demos, material submitted to committee, material generated by committee and so on.

Jargon

- Logbook:
  - Entries may not be edited/removed.
    - Enforced by the software not by user convention.
  - Entries may be annotated.
- Notebook:
  - Entries may be editted. Old versions are retained.
  - Typical use is “analysis notebook”.
- Not sure how widespread this usage is.

- Original Charge:
  - Deliver a report to FNAL ILC management by July 1st, 2006 that contains a recommendation and defense thereof for an electronic logbook to be used by ILC test areas at A0, Meson, IB1, and New Muon. The committee is charged with choosing a single recommendation to meet the needs of a control room logbook AND a single recommendation to meet the needs of an electronic notebook. The committee is strongly urged to choose the recommendation(s) from an existing implementation and highly encouraged to have the same recommendation for both the control room logbook and the notebook.
- Insufficient notebooks found: dropped from charge.

Clarifications to Charge

- Product must be useful for O(10 years).
- First needed about Aug 1, 2006.
- Stretch goal, examples:
  - With a single query one can see recent entries from all locations that are processing cavities, including Fermilab, Cornell, JLAB …
  - With a single query find all entries relating to some cavity which was processed at several different locations at different times.

Comments on Stretch Goal

- Two classes of solutions:
  - Central server accepts entries from all locations.
    - Could be realized with existing tools if the political will is there. More later.
  - Separate servers at each location. “Portal” knows how to break a single query into many and combine results.
    - This is a really big project, far beyond our scope.
    - A limited version of this does exist at DESY but it would be hard to maintain this as remote elogs evolve.
    - Authentication and authorization likely to be difficult and constantly changing.
    - GRID people are into portals but their focus is job control.

What an Elog is Not

1. A main data store.
2. A data catalog.
3. A document management system.
4. A slow controls data repository.
5. A system to manage construction travelers.
6. An analysis notebook.

- Can fake these functions with an Elog for a small, short term project.
- A really bad idea for a big or long term project.
  - First 4 functions typically require programmatic data extraction.

The Candidates

- **The Control Room Logbook (CRL):** FNAL CD. Used for about 5 years. Now used by D0, DES, MINOS, MIPP, MiniBoone, CMS ..
- **Technical Division Weblog (Weblog):** developed about a year ago and is used within technical division.
- **Accelerator Division Elog (AD ELog):** Aka MCR log. This product has a very strong user base and has been around for a long time.
- **JLAB logbook as ported to SLAC (JLAB):** This elog has been deployed at several locations at SLAC for about 2.5 years. Longer history at JLAB.
- **DESY TTF elog :** The workhorse of DESY elogs for about 5 hears, 15 logbooks some with 80K entries.
- **DESY IHEP elog:** evolution of TTF with a DB instead of XML files.
- **SNS elog:** The workhorse elog at SNS.
- **PSI logbook:** This product was used at MINOS for a while but it's use is declining due to support problems.
- **KBook (previously known as HepBook):** This is the one product that calls itself a notebook.

Methodology

- Detailed questionnaires on architecture (ILC-doc-292) and user features (ILC-doc-283).
  - Committee spoke with authors and used demos.
- Develop a list of requirements.
- Examination of questionnaires reduced the pool quickly.
- Did not develop bottoms up use-case driven requirements.
  - Most of this work would have been wasted since it would have gone to rediscovering features that were common to all products.
  - Results of questionnaires reinforced this.

Requirements

- Usual elog features:
  - Easy to use text entry GUI, programmatic entries, attach files, inline attached figures, annotate entries, view entries by shift, searches, links between entries …
- Architecture likely to survive 10+ years.
- Architecture makes it easy enough to maintain and develop the product.
- User authentication now and modern, secure authentication soon.
- Source code available.
- Usable with only a normal web browser.
- Entries must be permanent (audit trail).
- Complex searches involving both metadata and entry text (search of attachments would be good too).

TradeOffs

- Ease of data entry and fast learning curve are important to get buy in.
  - No login. Sign entries with initials.
  - Type names of devices by hand.
- Robustness of the data:
  - Login. Use login name to identify author.
  - Pick device names from form/menu.
- Robustness is less important if data is “uselessly old in 48 hours”. But we want to reliably recover data10 years from now, or more. So robustness is very important.

Questionnaire Results

- Many good candidates. Only two were really out of the running immediately, KBook and PSI.
- Some of the products from outside the lab might be a little bit better than the 3 FNAL products
- None of the products from outside the lab is so much better than the 3 FNAL products that it makes sense to support yet another elog at FNAL. Nor will a 4th elog supplant any of the other 3.
- Detailed reasons will be given in our report.

Quick Review of Products

- KBook:
  - Really a notebook. Glitches seen in demo.
  - May not have access to source code.
  - May cost real $.
  - Rejected.
- PSI:
  - MINOS liked it but they tried to make some changes and the server now hangs frequently. Archaic architecture is blamed for the difficulty in finding the problem.
  - Rejected.

Quick Review (2)

- SNS
  - Uses a proprietary component, Apple WebObjects, that requires a run time license and for which we would not get source. Will WebObjects be around in 10 years?
  - Otherwise looks very good.
  - Rejected.
- JLAB Elog
  - Generally very good with some unique features.
  - But not good enough to make it a 4th FNAL product.
  - Rejected.

Quick Review (3)

- DESY-IHEP
  - Lots of very cool features.
  - But entries are editable and deletable.
  - 100% servelet based, which makes for harder maintenance than some other products.
  - Rejected.
- DESY TTF
  - Robust and full featured.
  - Not good enough to become the 4th FNAL elog.
  - They have experience accepting entries from CERN.
    - Could we use it remotely? More later.

Quick Review (4)

- AD Elog
  - Strong fan base at FNAL, easy to make entries.
  - I love the mouse-over for images.
  - Entries must be signed by hand.
  - Weak search facility.
  - Poor granularity of data.
    - Hard to start with this and migrate to a newer product at a later date.
  - Rejected.

Quick Review (5)

- TD Weblog and CRL
  - Full featured.
  - Author name from login (CRL) or pull-down menu (Weblog).
  - Device names selected from pull-down menus (Weblog) or forms with pull-down menus (CRL).
  - Good granularity of data.
  - Searches of entry text are not indexed.
  - Logins are not fully secure.
  - Both above threshold for our purposes.
  - Both could accept entries from Cornell or JLAB if those places buy in.

Final Choice: Weblog vs CRL

- Have all features we are looking for or have an obvious upgrade path to these features.
  - No sense in adding upgrades to both products.
- CRL more widely used and upgrades would benefit more people at the lab. Suzanne/Patty are interested in doing the upgrades.
- CD does provide 24/7 server support for some CRL users; could negotiate this for ILC.
- A smaller point: CRL forms are a natural way to allow customized entries for different groups, while leaving main text entry page unchanged. Analog does not exist in Weblog – the device customization is all on the main page.
- Recommend that you choose CRL.

A Long Shot: TTF Elog Remotely?

- I am mentioning this for completeness; lots of cons.
- Pro:
  - If it all works, this is the lowest cost option by far.
  - Blazing a trail for the stretch goal:
    - If we can convince Cornell and JLAB to do the same, then we can realize the goal of having work from all locations visible in a single elog.
    - If we go first and succeed, is it easier to get other labs to buy in, compared to selling them on CRL?
- Con:
  - Danger that this ends up being a back door 4th logbook.
    - Support turns out to be as big as supporting a 4th logbook
  - Need to learn more:
    - Is network availability good enough?
    - Is DESY really willing to give enough support?
      - Developer is on board (Kay Rehlich).
      - Is his boss? Does he really have time?
    - Is network fast enough (Their demo is outside their firewall)?
  - Smaller benefit to FNAL from use of a common logbook.
  - Logbook has some weak features - Continued on next page.

Cons of TTF Elog

- Entries are editable.
  - Old copies are retained but you need to click to see them.
- True annotations are not supported.
  - They use editing conventions to distinguish annotations from the original entry.
    - Annotater must hand sign or this info is lost.
    - Annotater must hand date or else reader needs to do archeology on the old versions.
- User must hand sign entries.
- Only 0 or 1 inline image(s) per entry. This is deep inside their model.
  - AD Elog and CRL often have many images per entry.
- Print queue feature for adding images will not work outside their firewall.
  - Work arounds exist but require more mouse clicks.

Recommendations

- We recommend that you choose the CRL.
  - None of the outside FNAL products are so good that it makes sense to start a 4th logbook project at the lab.
  - CRL vs Weblog:
    - Could ask for 24/7 server support from CD.
    - Synergy with other groups at lab.
    - Forms are very powerful.
  - You need to work with CD to understand who supports what. Some administrator functions should be done by your project people.
- What about remote use of TTF elog?
  - I think that blazing the trail is the only real reason to do this.
  - It's risky and there is a good chance that further work on it would be wasted.