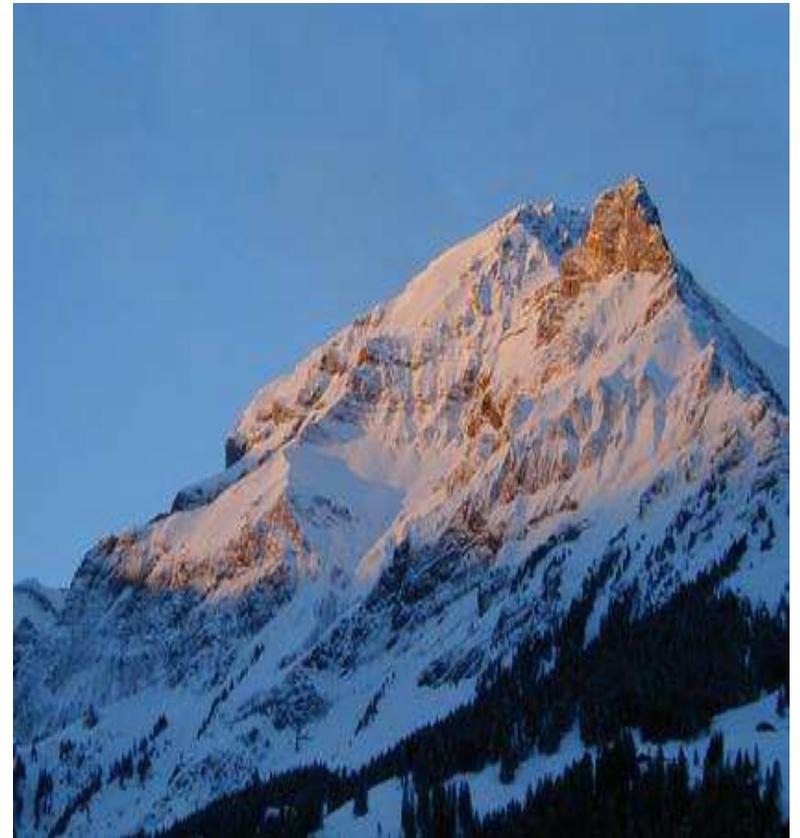


PDG Computing Review:

Planning for the Future

- Outstanding issues
- Manpower situation
- Conclusions



Current Status

- The completion of phase 1 of the upgrade is a major success
 - It eliminates the risk to PDG from the possible failure of the old system
 - At the very least, it allows us to continue producing the book in the old fashion
 - It allows us to gain experience with remote data entry by encoders
 - We have a greatly improved public web interface to RPP (pdgLive)
 - We have working versions of our most important user interfaces
 - If nothing else, they will greatly simplify reimplementation if necessary
- **But** it is only the first step:
 - We do not yet have a system that will be maintainable in the long term (years)
 - Phase 1 provides a minimal system that does not address the full functionality
- Therefore, phase 2 of the upgrade is not optional!



Open Issues (I)

- Long-term maintainability – our biggest worry right now
 - BRL/Kawa code
 - Auxiliary programs
- Currently no support for PDG reviews
 - Reviews should be integrated into the workflow management and book/website production systems
 - Authors should be able to update the review source files without interaction from Piotr (e.g. through anonymous CVS access)
- Currently no support for verification process
 - Automate sending of verification printouts to verifiers
 - Verifiers should be able to easily sign off on a verification web page (as opposed to current “no news, good news” system)
- Concurrency issues in encoder interface only addressed by policy, not design



Open Issues (II)

- We have not yet addressed the details on how to propagate pdgLive to our mirror sites
- Database structure
 - Database originally developed for the task of producing the printed RPP book
 - Ideally, scientific content and output format should be cleanly separated
 - Would like to have a more formal representation of basic objects such as particles, decays, observables etc. than the current representation as a combination of TeX and PDG macros
- Duplication of algorithms
 - Book production and online interface use same basic algorithm to collect information from database, but completely separate implementations
 - Only the representation of the output is different
- Use of TeXsis



Beyond the Primary Production Tasks

- Many smaller issues that need to be addressed, for example:
 - Rewriting of PDG ordering system is urgent
 - Current version is a Perl script that rewrites full 5MB address database for every single address update and causes recurring problems
 - No longer acceptable to ask users to click on link in e-mail to update their address
 - Rewrite mailing application
 - Finish migration of (mostly) static PDG and outreach web pages to new server
 - Improve monitoring of computing system (web server, cron jobs, ...)
 - Web server traffic analysis tools
 - Clean up server configuration, revisit computer security, ...
- Each one of the above task takes “just a few hours” or “just a few days”...
 - **But they add up to a very significant workload**
 - Earlier PDG had a full-time programmer taking care of all of this



Manpower: COMPAS Group

- Collaboration with IHEP/COMPAS group can continue for now
 - Slava and Kirill continue to be available at least until 2007
 - Kirill needs to finish his PhD thesis by 2007
 - Thesis topic is based on algorithms for parsing particle properties and decays in the context of RPP
 - Kirill needs time to work on aspects of PDG computing related to his thesis
- Future of collaboration beyond 2007 seems less clear
 - Slava and Kirill expect to continue to be able to work on PDG computing



Manpower: LBNL

- We used to have a programmer in our group (Paul Gee)
 - Laid-off in 2002
- Piotr
 - Full-time job as PDG editor (job #1)
 - Does most of the work Paul did previously (job #2)
 - Essentially no time for work on computing upgrade
- Juerg
 - Nominally 50% PDG (30% computing, 20% scientific) and 50% research
 - During last 18 months, probably >70% work on PDG computing
- Other PDG group members contribute to the testing of the viewer and encoder interfaces (at a relatively low level)



Danger Ahead

- In order to succeed with the phase 1 upgrade, I did sacrifice a large fraction of my research time over the past 18 months
 - I felt this was necessary and appropriate given the importance and urgency of succeeding with the initial upgrade
 - However, this is not what I am supposed to do, it is not fair to our CDF & ATLAS groups (and students), it is not in my interest and not what I want
 - **In the future I cannot contribute more than 30% of my time to PDG computing**
- After deploying new system in September, reduced my involvement to ~30%
 - Immediately reduced the rate of progress significantly
- 30% of my time is not sufficient to address the part of the work that needs to be done within the LBNL PDG group for phase 2 of the upgrade
 - Piotr is already overloaded and cannot take over any significant piece
- Need to learn about auxiliary programs from Orin while he is still at LBNL
- **Do not expect any significant further progress w/o additional resources**



– Relatively soon, we'd be in a dangerous situation, as we were 18 months ago

Could Information Systems and Services Help?

- From a discussion with Jeff Willer, 11/17/2005:
 - ISS could help perform the work needed to arrive at a specification of what should be built
 - Specification expected to take several FTE months of work
 - **Significant workload on Piotr and myself**
 - Implementation cost probably around at least **\$200k** for replacing the existing viewer, encoder and editor interfaces with maintainable ones offering the **same functionality**
 - This is a guess, not a real estimate – could be factor x2 more expensive
 - Implementation could be completed on time-scale of 2 years
 - Would likely be based on Oracle and JSP



Other Possibilities

- PDG hires a programmer (temporary or permanent)
- Outside contractor
 - Would have to work very closely with us
- ???



Conclusions

- Given the urgency of succeeding with at least a minimal upgrade, we decided early last year to continue with current approach until we had a minimal system that would help us produce the RPP for a few years
 - We succeeded in doing this and switched to the new system in September
 - Achieved at considerable sacrifices
- In order to arrive at a maintainable system that satisfies our needs we must proceed with the upgrade
- Right now, we do not have the required manpower at LBNL to begin phase 2 of the upgrade

