arXiv development staffing proposal for CY14

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Summary

The 2012 financial projection proposed 1.5 FTE for development in CY14. This is enough to keep arXiv operating but not enough to tackle the many necessary improvements to user and moderation facilities. I propose increasing this effort budget to 2.5 FTE to allow reasonable progress to be made.

How much effort is required and where does it go?

Analysis of development effort expended in the first half of CY13 shows that ~1.6 FTE went to maintenance and systems administration tasks. The migration to virtual machines meant that systems related work has been a slightly larger fraction of total effort than would usually be the case. It thus seems reasonable to consider 1.5 FTE as the baseline effort required to "keep the lights on" with only very minor improvements.

The projection of 1.5 FTE effort for CY14 was based on an estimate of the effort needed to keep arXiv running, including system administration, ongoing bug fixes, and minor improvements. This appears to be accurate based on recent experience. It was expected that any significant new development work would be funded separately but so far we have not planned any separately funded work. I thus propose that 1 FTE additional effort should be included in the development budget to bring the total to 2.5 FTE.

Technology plans for arXiv

Migration to Invenio to replace the browse and access components of arXiv was abandoned in late 2012, and I do not think it would be wise to consider a major migration in the immediate future. The core of arXiv is written in Perl, and the submission system and parts of the admin system use the Perl/Catalyst MVC framework. Unfortunately, there are other parts of arXiv written in PHP, in Python, and in Java, which need attention and are hard to maintain. During CY14 our strategy should be to consolidate around the Perl/Catalyst framework. We should rewrite at least the PHP and Python components using Perl/Catalyst, and some Perl/CGI components should be migrated to Perl/Catalyst for increased performance.

Development tasks

We are currently working on development tasks proposed in the 2013 roadmap, and engaged in discussions with the SAB on what the priority tasks should be. The original effort estimates have proven optimistic and so less will be completed in CY13 than was planned in the roadmap, and work will continue on CY14. Additional improvements requiring more than 2 FTE-years effort are already identified in the development backlog. With a total of 2.5 FTE development effort there will be approximately 1 FTE to make progress on the most important improvements in the backlog. With just 1.5 FTE development effort there would not be any significant progress on backlog issues.