

Projects 1.c & 1.d - Review and improve Archie's technical platform

Project 1 consists of four sub-projects in total: 1.a Update server hardware, 1.b Update database server software, 1.c Update application server software, and 1.d Review and update Archie programming framework.

1.c Update application server software

1.c.1 Background

The Archie application runs on top of another piece of software known as an application server. The specific application server used for Archie is JBoss. This is widely recognised as the best open source application server and by being open source it is free of charge. We use version 4.2.2 for Archie, from October 2007. Version 5 was released in December 2008 after several years of development and testing.

1.c.2 Proposal and discussion

The JBoss application server, on which Archie is running, should be upgraded to the new version (5.0.0 or later). We would do this within a test environment initially, to resolve any incompatibility problems associated with running Archie on the new version. After this testing and an assessment that the new version is running smoothly, we will update the application server for Archie itself.

This project does not include any modifications to Archie except what is required to make it run on the new application server. Investigating and taking advantage of the many new feature and technologies in JBoss 5 will be part of Project 1.d and other future projects. We strongly recommend therefore that this project should be done before 1.d and, in fact, it might not be possible to embark on 1.d without the completion of 1.c

1.c.3 Summary of recommendations

The application server should be updated to the latest version, in order to create a strong platform for future development of Archie.

1.c.4 Resource implications

The application server software is free. The setting up of the test environment for the new version will take about 1 FTE week, and between 1 and 4 FTE weeks of developer time will be needed to modify Archie to run on the new version.

1.c.5 Impact statement

This upgrade is an investment for the future. There will probably not be any measurable effects immediately for end users but performance may be improved. We cannot confirm this until the upgrade has been tested.

It is always easiest to update software incrementally, taking advantage of each major new version when it is ready. If we do not take this incremental step now, upgrading may be much more difficult in the future and future support or bug fixes for JBoss will only be available for the new version.

1.d Review and update Archie programming framework

1.d.1 Background

The framework on which Archie is based was state of the art five years ago, but several relevant technologies have been developed since then. The main problem with the old technology is that it is 'heavyweight' and is under-performing when many objects are involved (e.g. for the production of reports). Another consideration is that

developers believe the technology is difficult to use, which may impact on our ability to attract staff to work on the IMS, but might also be indicative of inefficiencies in continuing to use this framework.

1.d.2 Proposal and discussion

It is likely that performance could be improved by switching to a new, lightweight technology, which may also be easier for the developers to use. The first part of this project would be to investigate the new technologies that are available, and select one for a pilot project. The new technology may be provided by an updated application server (Project 1.c), or may have to be found elsewhere.

The pilot project would either apply the new technology to an existing part of Archie or use it in the development of a new module. After this initial assessment, the IMS team would decide that the results are satisfactory, or that a different technology should be assessed. We might also decide that external consultation is required at this stage.

The second part of this project is to plan the application of the new technology to Archie as a whole. The choice of technology and the programming resources available will determine which of the different implementation models to follow. For example, we could do it all at once (which may be a huge job); or set aside a certain amount of time each month to update the existing code over a period of several months.

1.d.3 Summary of recommendations

- A pilot project should be undertaken to identify new technologies to improve the performance of Archie
- Devise a plan for applying the new technology to Archie as a whole
- Implement this plan— perhaps as part of another project

1.d.4 Resource implications

The pilot project would take up to 13 FTE weeks of developer time. This will need to be followed by a few more weeks to prepare the report. The resources needed thereafter, to implement the preferred new technology cannot be estimated at this time, since the pilot project will determine these needs. We do not expect that the new technology will lead to additional hardware or software costs.

1.d.5 Impact statement

The primary aim of this project is to improve performance in the future. This is part of the general maintenance of any system, where the evaluation and, if relevant, renewal of the technology is to be expected. It is difficult to list the benefits of this project in advance, since the project itself is needed to identify the needs and potential benefits. However, we do know that the programming code for Archie needs to be sustainable into the future and that the longer we wait to undertake this project, the larger the task will be. In a competitive market for skilled programmers and systems developers, working with new, interesting technologies is an advantage, and as technology becomes old, this also reduces the size of the skill base from which staff who understand the code can be recruited.