FIRST STEPS WITH SAKAI

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1. EXECUTIVE SUMMARY

1.1. Background

By the end of 2006 the university P.M. Curie (UPMC) decided to move from the Learning Management System it had been using since 2000 to a new one. The push was drove mainly by two factors: a) a permanent increase in the annual price of the license which became unbearable for the practical use of the platform b) a mandatory requirement to move to a new version with all troubles it meant both for the staff and for the users accompanied by a trouble vision of the future of this new version.

A search was made to replace the previous LMS. The main criterion was not the pedagogical aspects of the platform: UPMC being mainly a research university, teachers are more interested in the collaborative aspects of a platform than in its pedagogical ones. The LMS was mainly used as an exchange platform or to control the access to the documents by the students. Secondly, only a limited number of tools were used by a vast majority of teachers and the selection for the solution should be made according to these aspects. Last, the possibility to fully integrate the platform in the university portal (technology ESUP/uPortal) had to be considered.

In January 2007 the choice was made for Sakai and a test platform was installed, opened to any user, not only from the campus but also from all the French speaking community.

1.2. Beginning

During the summer 2007 all documents have been transferred from the old to the new platform. Since the platforms had no common standards, the documents had to be transferred manually. Questionnaires and pedagogical paths were lost and had to be rebuild. This part was left to the teachers. In the beginning of September the first batch of training was delivered to the teachers starting their courses September 15th. Since that time courses have been regularly delivered for the newcomers. A wiki was written to answer to the questions of the professors and it is regularly updated. Later a helpdesk has been established.

Sakai is fully integrated in the portal. The newest general announcement appears directly in the portal and each activated tool is accessible directly from the portal. As soon as a student is registered in a course, he may automatically access it from the portal.

1.3. After nine months

The collaborative approach of Sakai fits quite well the spirit of the university academic staff. Today 11 000 students use the platform and 200 courses are opened. Knowing that the platform is never used as a repository, just to store documents, and that courses are opened only if a professor wants more, it means that 30% of the professors use it as a means of interaction with their students. The use varies from just delivering documents at given times to a strong interaction, building statistics of how students use the tools (questionnaires, chat, homework, chat, discussion…). Today, after nine months, we have more users in Sakai than in a full year with the preceding platform. This success may be explain not only by the fact that Sakai fits our needs and is well integrated in our environment but also because everybody seems to be more involved in an open source solution.

2. MOVING TO A NEW PLATFORM

By the end of 2006 the university P.M. Curie (UPMC) decided to move from the Learning Management System it had been using since 2000 to a new one. The push was drove mainly by two factors: a) a permanent increase in the annual price of the license which became unbearable for the practical use of the platform b) a mandatory requirement to move to a new version with all troubles it meant both for the staff and for the users accompanied by a trouble vision of the future of this new version.

A panel of motivated teachers was consulted to understand which tools they had mostly been using in the platform. Without any surprise a few number only emerged:
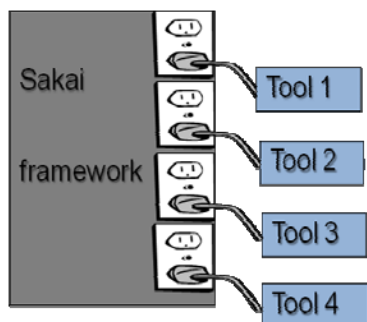
1. Storage of documents, of course, although the strategy at UPMC, has always been to offer other solutions, such as classical websites or the repository in the university portal, to teachers who were only interested in this facility. Those who limited themselves to this tool were also interested in the possibility of following the progresses of their students and the facility to define time slots where the documents were accessible. This politics explains why not all courses and students are registered in the platform. This is an important difference with many universities, all around the world, where the primary use of a LMS is just a repository.

2. Communication tools: the platform offered an internal e-mail system that a number of professors found interesting because it could not be polluted by spam or any message not related to the course. Some asked for a double choice: both internal e-mail and the possibility to access the "normal" e-mail addresses of the students. Forum was less demanded and the chat system was seldom used. However they remain mandatory.

3. Questionnaire. A true LMS must contain such tool although its use was limited by the fact that, as a Sciences university, we use graphics, symbols and equations which are not available in such tools. A solution has been found lately (see MathTex), employing an external server able to send back GIF images of equations and symbols when posted as Latex code. It can be employed for any HTML page.

4. Pedagogical path. In most cases teachers do not make any difference between pedagogical paths i.e. paths to guide the students from one document to another week by week, session by session, and a simple chapters list. Very few are interested in the possibility to dynamically build this path depending on the results of the students to tests and quizzes included between teaching documents. Thus the sophistication of such a tool was not our primary worry.

5. All teachers appreciate the statistics tools and the possibility to follow the use of the platform by the students. This was not a surprise since has always been one of the primary reasons to open courses in the platform.

6. All other tools ranked far behind. An interactive white board had been used by the mathematicians in the beginning to write equations and draw graphics, in conjunction with the chat, but strangely was no more use. The reason may be that it was not easy to use this tool with an ordinary mouse and was more adapted for a graphical tablet.

Different LMS have been considered as a replacement. From the beginning, it was decided to change for an Open Source solution, since the price of the license was approximately the cost of a full time engineer. We did not expect big financial savings, at least in the beginning, but we were convinced that, having to put our hands in the engine would mean a better understanding of the LMS, thus a better local support for the users. This was confirmed later. We also knew, from our practice of the university portal (see ESUP/uPortal site and P. Aubry (2007)) that an active community can be a better support than a commercial vendor. The LMS having to "speak" French very few Open Sources solutions exist for which we were convinced that such a community exists. We rejected very good solutions because we had doubt about their future.

Three solutions emerged: Claroline, Moodle and Sakai. Claroline and Moodle use the same technology (PHP): the French Moodle community being much larger, Claroline was quickly rejected. The choice remained between Moodle and Sakai. Sakai is Java J2E and its developers work very

closely with the JA-SIG uPortal community. Although a Java platform is much more difficult to install than a PHP platform we did have the expertise, the basic of the system being exactly the same than for our ESUP/uPortal portal. We are convinced that this technology is technically much more superior to a PHP solution (ability to sustain a heavy workload, security...) and the JA-SIG community as well as the Sakai roadmap convinced us that it could be better integrated in our portal.

Another interesting difference between both LMS, is that Moodle is more pedagogy oriented, Sakai is more collaboration oriented and we knew that the pedagogical aspects was not the main demand of the teachers: although all courses use on-line documents 5000 students only were registered in the LMS i.e. 25%! It should be mentioned that the large registration score given by many universities hide the fact that no other means is given to the teachers to present documents on-line, thus our practice is less uncommon than it appears.

Sakai architecture is made of a framework and a number of tools which are presented to the teacher. He then configures the course and decides which ones he wants to use. Thus he can emphasize on the pedagogical aspects or on the exchange and collaborative aspects. For people only interested in the collaborative aspects of Sakai, the administrator opens the course with a slightly different configuration. The difference is mainly the definition of the different categories of users.

Moreover external facilities can be linked to be accessible from the platform. For instance if one is not interested in the internal forum facility it is very easy to add a link to the "normal" institutional forum system to use it instead.

In January 2007 the choice was made for Sakai and a test platform was installed, opened to any user not only from the campus but also from all the French speaking community. In May the final decision was made and the close of the commercial platform announced for September 1st, Sakai being opened September 15th.

3. STARTING: THE PROTOTYPE

During the summer 2007 all documents have been transferred from the old to the new platform. None being SCORM compliant, only the documents could be transferred. Questionnaires, pedagogical paths had to be rebuilt. This part was left to the teachers. A student was hired to transfer documents between LMS.

Sakai was integrated in the portal so that it is accessible by single sign on (SSO). A portlet was designed by the portal team to access directly all Sakai tools from the portal. What does this mean? In most cases, when a LMS is integrated in the portal, it just means that a link is established and that a new authentication is not needed. Our integration goes far behind! Any time a teacher decides to activate a new tool it automatically appears in the dedicated Sakai channel. The professors register the students at will, just copying in the dedicated Sakai tool, their official id. Automatically Sakai finds their full identification (name, forename and e-mail address) from the university LDAP directory and the students find the entry for their courses and all the activated tools, automatically, the next time they log in the portal.

Each time the administrator or the teacher makes an announcement it is signaled in the Sakai channel of the portal thus it is not necessary to enter the course to be aware of the announcement.

In the beginning of September the first trainings were delivered for the teachers who were starting their courses September 15th. Not all the tools were installed and among the available ones a distinction was made on the important ones and other available but with limited or without support. The reason was that the Sakai team had a limited experience itself and wanted to fulfill correctly its duty. The main tools were:

- Resources: storage system
- Melete: pedagogical paths
- Tests and Quizzes
- Email archive: to exchange mail among participants using either an internal system or the university addresses as registered in the LDAP directory.
- Chat Room
- Discussion: a forum
- Schedule to maintain a course calendar
- Statistics for follow-up of students...

In reality the teachers did not wait and started very quickly to practice all available tools so that we had to learn ourselves very quickly to be able to follow them. Among the "non supported tools" the most demanded were the "grade book" to register the notes given to the students, the "drop box" which permits to the teacher to exchange documents individually with each student, "assessments" for the students to give back their written work to their professors and receive their corrections... More than 20 tools were activated!
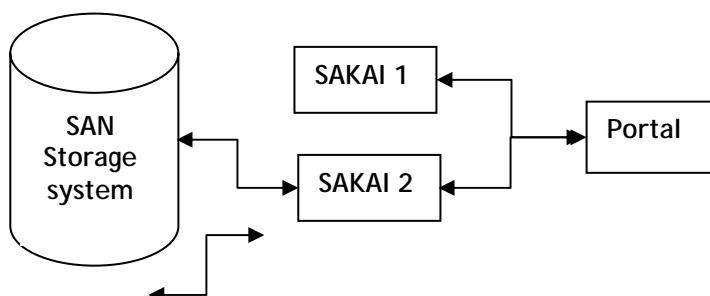
Seminars were rapidly organized to allow both support team and practitioners to exchange about their practice and use of the platform. Since that time courses have been regularly delivered for the newcomers. A wiki was established to answer to the questions of the professors and it is regularly enriched.

In December more than 180 courses were activated and 7 000 students were using regularly Sakai. In three months we had more users than in a full year with the previous platform.

4. SECOND PHASE: SUSTAINING QUALITY AND LOAD

In the first phase Sakai has been running on an individual server. By December it was decided to move to the next scheduled step: full integration of Sakai in the portal.

Two additional IBM HS21 blades were added in the IBM blade center where the portal was already running. Both blades were installed with the same configuration than for ESUP/uPortal, the difference being at the application level, i.e. running Sakai instead of uPortal. The Sakai database was installed on the SAN system already used by the portal and the same load balancing system was used.

The main reasons for this move were a) Share the expertise of the team already in charge of maintaining the portal. They did install the system and took care of its maintenance, the Sakai team being responsible for the application only. b) Ensure a quality of service by the redundancy of both servers and the RAID security features of

the storage system. c) The ability to add very rapidly a spare blade for tests either for uPortal or for Sakai and the easiness of virtualization for the future when the load will increase.

The main purpose was not to sustain the load which was acceptable on the rather modest server previously used but to ensure a continuity of service if a server was going down.

Starting in February, with the new semester, more than 2 000 students and a few tens of courses joined rapidly so that today the number of users is about the double of the previous year. We have exploded our better expectations.

About at the same time a professional helpdesk system (GLPI) was installed and the support team was reorganized to better assist the users.

An unexpected but not surprising feature has been that a number of research labs and departments have asked for the opening of collaborative spaces and today 15 such spaces are now being used (It must be remembered that some universities use Sakai as a collaborative tool only, not as a teaching platform). This is very encouraging because it means that the platform can fulfill two different uses at the same time. We may also think that the teachers who appreciate Sakai in their research work will easily extend its use to teaching and vice-versa.

5. WHAT NEXT?

It is too soon to exactly know the appreciation of our users. We will launch an inquiry to better understand the reaction of the users, thus it is too early to report exactly what do they think but we had very few bad reactions, mostly from users who refused to change from their previous use. Most adapted very quickly and a number reacted very positively. As expected the collaborative aspects are appreciated. Maybe the involvement of the staff, very concerned by the fact that we are responsible for all parts of the installation and maintenance, is a reason for this success. Users appreciate the support they receive.

We are very confident in the future for many different reasons. One of the main confusions today among portals and LMS is that they offer more and more equivalent features. The structure of Sakai may help in solving this confusion: being a framework it is very easy to add, in the tools menu, external links to tools which in reality belong to the portal. For instance, we intend to add, in a near future, a video-conferencing tool in the portal: without any difficulty, teachers will be able to add it in the context of Sakai.

Another reason is the intended roadmap for Sakai and uPortal to do their best to converge so that, someday in the future, the same tools will be available in different contexts from both the portal and Sakai.

The Sakai framework also permits a smooth evolution from old tools to better ones and this is what users dream! We, as administrators can install a collection of equivalent tools, letting the teachers decide which ones to use. The only limitation is the compatibility of such tools with the new releases of the framework and our ability to assist them on a variety of tools!

 Last the organization of Sakai gives us the largest freedom: it is an Open Source platform but commercial enterprises are associated and already offer all levels of assistance. It means that we may, at will, decide to buy maintenance instead of devoting an engineer for the maintenance. It is not our intention today because we believe that our implication is one of the keys of the success but this gives us the freedom to reorganize our taskforce if necessary.

6. ACKNOWLEDGMENTS

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