

Wiki and mailing list integration, an example of middleware application

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1. EXECUTIVE SUMMARY

Virtual organizations are working groups of geographically distributed people. They are said «virtual» because the people constituting them can actually belong to several - and possibly unrelated - different organizations. They widely use mailing lists to make information available to all the members of the organization. In addition to the broadcasting functions provided by mailing lists, it is necessary to provide them with a collaborative web space to work on reference documents.

The solution proposed in this article consists in coupling a mailing list manager, Sympa, and a wiki engine, DokuWiki, allowing to make these two resources available through a single authentication system, a single group referential, and a single group of administrators for both tools.

This is achieved by allowing DokuWiki to constitute groups of users based on the members of a mailing list, and to gather authentication to both these tools within an identity federation handled by Shibboleth.

The resulting system is in production, and the number of working groups using it keeps on increasing.

2. GOALS OF THE SYSTEM

The CRU operates a national mailing list service, accessible through CRU (2008c). It is widely used by the French academic community. This service allows creation, administration and removal of lists autonomously by the list owners, through a web interface. Among the users are a lot of thematic working groups, made of people coming from several research and academic organizations. These scattered communities use the service to broadcast information to the group through emails to the list.

It is well known that the usage of mailing lists varies, though it is often an essential mean of communication. However, it is not without limitations. A lot of working groups are constituted in order to create and maintain a repository of reference documents. Mailing lists are unable to maintain such a repository. Their main functionality is to bring messages and documents to all the members of a list. Not to keep a reference copy of these documents. They can just spread informations and keep track of the discussions. When the number of participants and of documents increases, the need for a true collaborative platform arises.

Wikis are intended to provide just such a platform. Their main function is to help people constitute and organize documents collaboratively. They could then be a perfect addition to a mailing list service, by providing this collaborative space in addition to the broadcasting functions offered by the mailing list. However, the simple addition of a wiki doesn't fit all the needs. Indeed, in most working groups, it is needed to control who can view or modify the documents. So the wiki must check that the people accessing the resources belong to the right working group. Yet, due to the scattering of the group members, their membership is defined solely by their membership to the mailing list.

Our goal is then to finely couple a wiki with the mailing list manager Sympa. This coupling must provide a single sign on to avoid users password multiplication. It must base the access rights to the wiki page on the membership to a mailing list. Finally, we must be able to create wikis as easily as we create mailing lists.

3. TOOLS

3.1. WHY SYMPA?

Sympa (Aumont, S. & Salaün, O. (2008)) is the mailing list software used by the French universities. It is widely deployed in the academic community and beyond. Mailing lists are often defined by LDAP requests, but the daily management of the list is delegated to one or two people who chose who can subscribe or not. These are the list owners.

Since a long time, we try to make Sympa provide, in addition to the mailing functionalities, a web space shared by all the subscribers. This functionality is very popular, but users still complain about its poor set of functionalities and poorly designed web interface. That is because it is only intended to allow subscribers to share a few files, not to build a web site.

3.2. WHY DOKUWIKI?

There are lots of wiki engines. DokuWiki provides most of what we expect from such a tool. Functionally speaking, it contains all the classical wiki functions: multiple edition syntaxes, versioning, indexing, access rights handling (later called ACLs), concurrent writing management, online administration, changes notification, RSS, templates, etc. The CRU has been using it for two years now, for internal purpose. See Gohr, A. (2008) for additionnal informations about DokuWiki.

We can add to all this a plugin system which allows to extend the system functionalities without patching the wiki code. These plugins can also be applied to authentication and authorization. It is then possible to create a plugin implementing the coupling between DokuWiki and Sympa. This coupling won't require any modification to the wiki code and will then remain stable even if mainstream code changes.

4. SYMPA AND DOKUWIKI COUPLING

4.1. SYMPA SOAP INTERFACE

A Sympa server comes with a SOAP interface that provides several functions for other applications to use. For example, this SOAP service can be used to display the list of subscriptions through an UPortal web portal.

Particularly, one of these services accessible through the SOAP interface returns, for a given user, the list of lists which (s)he is subscribed to and the list of lists (s)he owns. This function is used when DokuWiki checks a user access rights to a given wiki page or namespace.

4.2. SIMPLE SYMPA AND DOKUWIKI COUPLING

All the DokuWiki authentication plugins actually perform two actions: first, they check the user's identity (typically using a password); then it builds the list of groups this person belongs to. This list is later used when the access rights are evaluated for each page. Indeed, ACLs for a given page can be defined for a group as well as for a single person.

The main component of the coupling between DokuWiki and Sympa is the authentication plugin for DokuWiki which consults, through the SOAP interface, the list of subscriptions for the authenticated user. It then turns it into a list of DokuWiki groups.

The first version of our authentication module worked as follows: when a user logged in through the DokuWiki interface, validated the login and password provided through the Sympa SOAP interface. If the SOAP servers validates them, the plugin creates a DokuWiki session. The user is then connected and the classical ACL evaluation process is performed by DokuWiki. The groups the user belongs to correspond to the lists (s)he is subscribed to or that (s)he owns.

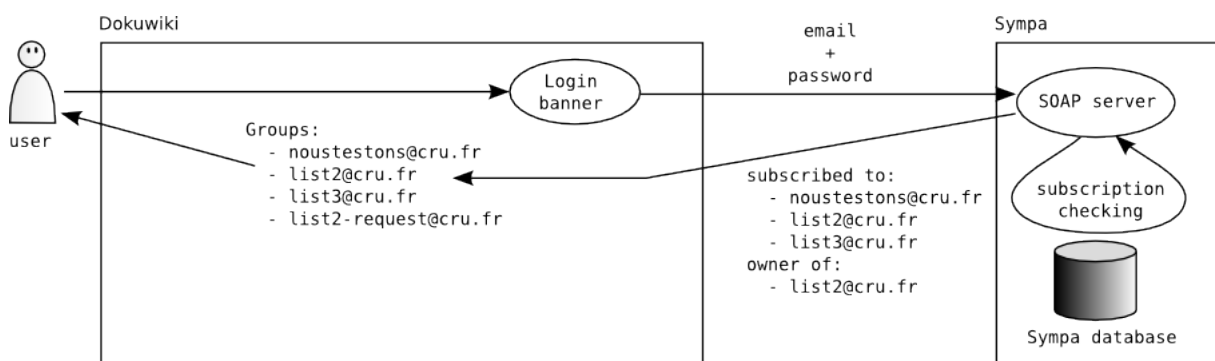


Figure 1: Simple DokuWiki/Sympa coupling

This module is in production on our server since a year and a half. It does not require any file sharing between the applications (all the communications are done through SOAP). It can then be realized between two independent servers.

It presents however a limitation: there is no true single sign on. People must authenticate in both the Sympa server and the DokuWiki one, even though both systems share the same authentication backend. This limitation lead us to switch to a better solution, with Shibboleth as a central authentication system.

4.3. ADVANCED COUPLING BETWEEN SYMPA, DOKUWIKI AND SHIBBOLETH

To obtain a single sign on between the mailing list manager and the wiki, we modified the authentication plugin (Launay, D. (2008)) so that it can rely on an identity federation service. The CRU massively invested in the development of a national federation infrastructure, widely used in the research and education community in France. You can have details about this federation through the page CRU (2008b). It seemed natural to plug the couple DokuWiki/Sympa to this service.

It is out of the scope of this article to elaborate on the different advantages of using Shibboleth. Let us just say that, in our case, the SSO was not the only advantage. Indeed, the provisioning quality is

ensured by the fact that, using Shibboleth, user informations are directly provided by their home institutions. For example, the email attribute is guaranteed to be reliable and canonical. This prevents the authentication problems that occur when people subscribe to a mailing list with one email address and then send messages to the list with another From address. The same way if they subscribe to a list with a certain address and log in to DokuWiki with another one, their access right won't be correctly granted.

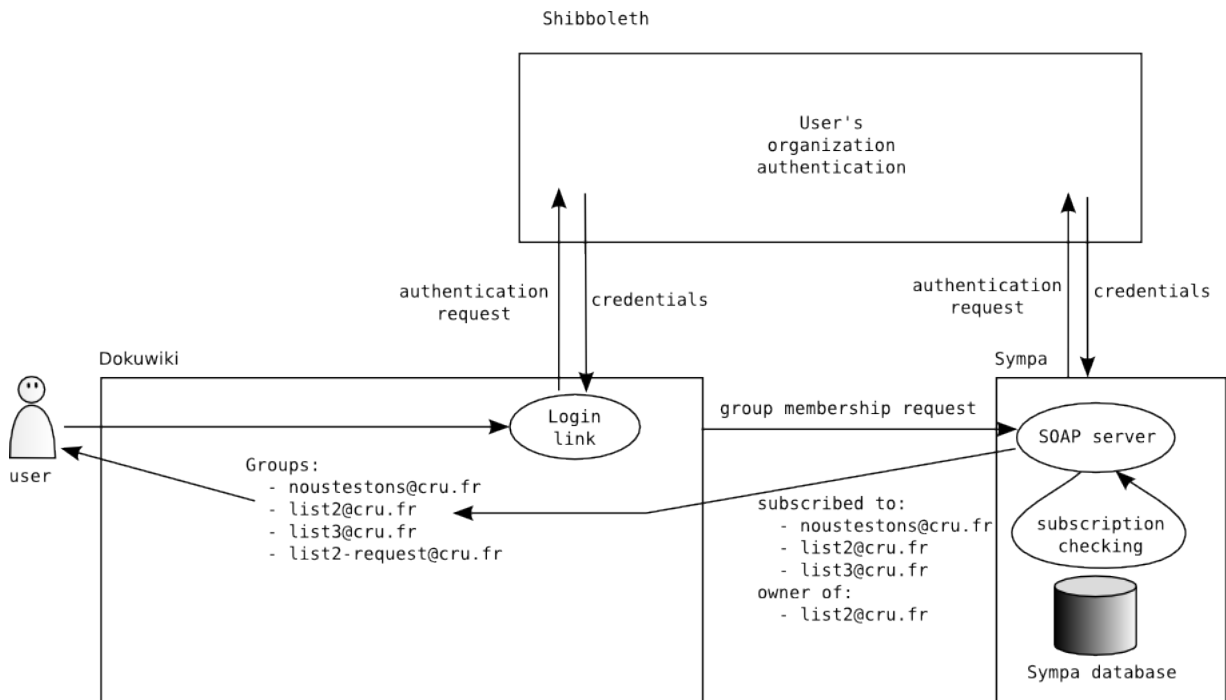


Figure 2: Coupling DokuWiki Sympa with an identity federation based authentication

As for the first plugin, access rights are built upon a list of subscriptions returned, through SOAP protocol, by the Sympa server.

5. APPLICATION TO A HOSTING SERVICE

To apply this system to a whole mailing list hosting service, we had to simplify the wiki administration. Indeed, our Sympa server is based on the principle of tasks delegation: the server administrator only performs tasks regarding the overall functioning and configuration of the server, most of the list's specific action are delegated to the list owners. We achieved the same result for the wikis.

To do this, the list owners must be granted the administration rights on their wiki. When these owners change, the administration rights must be automatically transferred to their successors. Each wiki is then created with a group of administrators. This groups correspond to the dynamic definition of the list owners that is available through the Sympa SOAP interface.

 LE WIKI DE LA LISTE NOUSTESTONS

Vous êtes ici: index

Super Access Control List Management

The page displays the permissions of all pages and namespaces of a selected namespace.
You can add new permissions for namespaces and pages.

Select namespace to administrate

Permissions for *

Add new Entry

Permissions for * (Namespace)
Read Edit Create Upload Delete

Permissions for Page sidebar

| | | | |
|----------------------------------|---|---|--|
| Group ALL | <input checked="" type="checkbox"/> Read <input type="checkbox"/> Edit <input type="checkbox"/> Create <input type="checkbox"/> Upload <input type="checkbox"/> Delete | <input type="button" value="Rafraîchir"/> | <input type="button" value="Effacer"/> |
| Group noustestons-request@cru.fr | <input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Edit <input type="checkbox"/> Create <input type="checkbox"/> Upload <input type="checkbox"/> Delete | <input type="button" value="Rafraîchir"/> | <input type="button" value="Effacer"/> |

Permissions for Page index

| | | | |
|--------------------------|---|---|--|
| Group ALL | <input checked="" type="checkbox"/> Read <input type="checkbox"/> Edit <input type="checkbox"/> Create <input type="checkbox"/> Upload <input type="checkbox"/> Delete | <input type="button" value="Rafraîchir"/> | <input type="button" value="Effacer"/> |
| Group noustestons@cru.fr | <input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Edit <input type="checkbox"/> Create <input type="checkbox"/> Upload <input type="checkbox"/> Delete | <input type="button" value="Rafraîchir"/> | <input type="button" value="Effacer"/> |

Permissions for Namespace *

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| Group ALL | <input type="checkbox"/> Read <input type="checkbox"/> Edit <input type="checkbox"/> Create <input type="checkbox"/> Upload <input type="checkbox"/> Delete | <input type="button" value="Rafraîchir"/> | <input type="button" value="Effacer"/> |
| Group admin | <input checked="" type="checkbox"/> Read <input checked="" type="checkbox"/> Edit <input checked="" type="checkbox"/> Create <input checked="" type="checkbox"/> Upload <input checked="" type="checkbox"/> Delete | <input type="button" value="Rafraîchir"/> | <input type="button" value="Effacer"/> |

Connecté en tant que : david.verdin@cru.fr index.txt · Dernière modification: 2008/05/14 15:36 (édition externe)

Powered by Dokuwiki

Figure 3: Access rights management in DokuWiki. Note the "noustestons-request@cru.fr" group, which corresponds to the group of list owners

A good care was taken to limit the list owners possibilities because some functionalities of the administration interface must be handled with care. For example, the plugin management is not available to list owners, because installing a buggy plugin could break the whole wiki service.

The Wiki Farm extension to DokuWiki (Brand, G. (2008)) allows to create a large number of wiki instances with a single DokuWiki installation. We use this mechanism to manage a wiki service over several virtual domains. A dedicated CGI script is accessible through the list administration interface and allows list owners to create the wiki associated to their list through a single click. The newly created wiki configuration is based on a generic template. To ease the use by list owners, wikis are initialized with both a private (reserved to subscribers) and publics spaces.

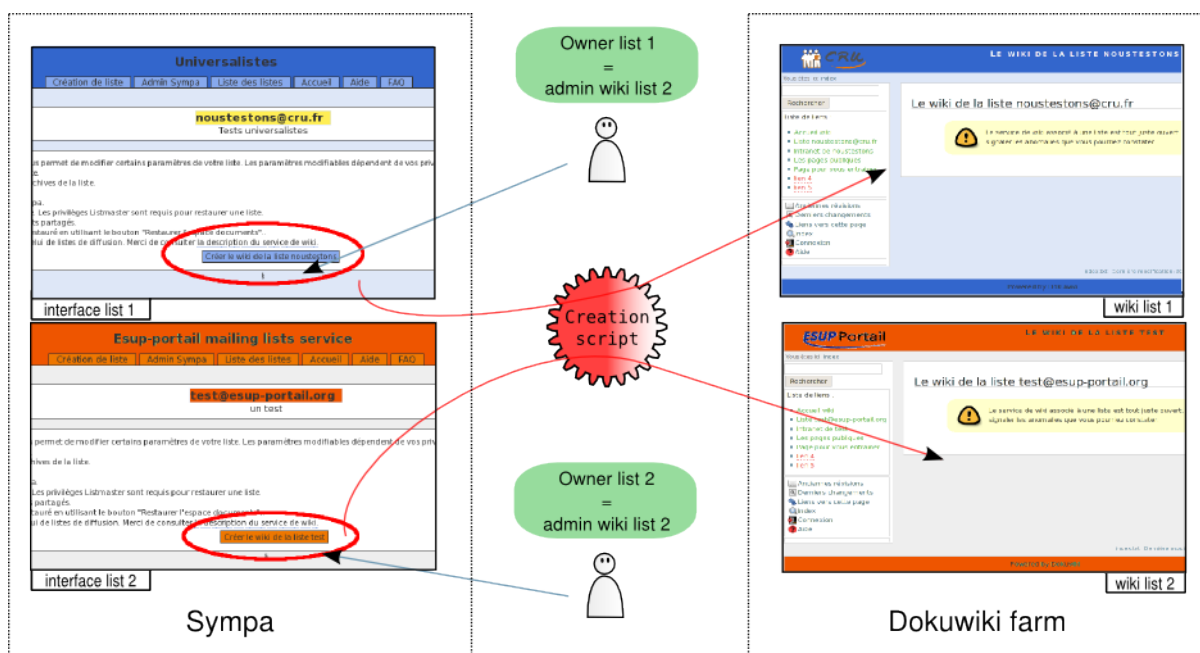


Illustration 4: Each list owner can create the wiki for his/her list by a single click

6. RESULTS

6.1. OBSERVATIONS

The CRU Sympa server hosts around 800 list, reaching total of 230 000 subscribers. In the last three months, 70 wikis have been created.

The lists actually using the coupling with DokuWiki correspond most of the time to working groups. The goal of the system is then reached: providing an integrated collaborative space to scattered working groups. Several recent list creation have been motivated by this coupling with DokuWiki.

It is noticeable that very few assistance is needed for the wiki part of this service. It is probably due, in addition to the intrinsic qualities of DokuWiki, to the fact that wikis are already widely used tools and seem natural to most users. It is also known that it self-learning capabilities of users.

6.2. ADVANTAGES AND LIMITS

It is possible to refer to several lists in a single wiki ACL, for example to provide write access to two related working groups. This way, you can define subdivisions amongst the users of wiki, each with different rights.

However, it is not possible, today, to query several Sympa servers within a single wiki instance; but a single Sympa server can be used by several wiki installations.

6.3. DO IT YOURSELF!

Installing a similar service is very simple, as it is based on independent, well tested softwares, as Sympa or DokuWiki.

These are the software we rely on:

- an Apache web server;
- the mod_shib Apache module activated; this is the Shibboleth service provider;
- a Sympa server;
- a DokuWiki server with the Wiki Farm extension;

- the shibbolethauth plugin for DokuWiki, which will handle authentication and Sympa-based access control within DokuWiki.

We give, as reference CRU (2008a), a URL to a page providing all the implementation details.

7. REFERENCES

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