XAP Integration – Detailed Design
Students Portal - Release 2

12/10/2002

Author: Chris Lawson
Last Modified By: Chris Lawson

Last Updated: 12/10/2002 12:20 PM
Version: 1.0

Change Record

Date	Author	Version	Change Reference
12/10/2002 12:20:06 PM	Chris Lawson	1.0	Begin document.

Table of Contents

1. Login

Introduction

The login for Release II of the Students portal application will reside (hosted) on Xap. The main reason for this decision is to leverage Xap's large user base that originated from many other Mentor™ sites hosted by organizations throughout the US. Therefore, since all of Xap's users are stored in one central location, any user can use their existing account to login to the Students portal. It is intended to notify the user on Xap's site (www.xap.com) that their account, created from any site powered by Xap, can be used on the Students portal.

Communications and notifications to existing users will be addressed in the following ways:

- The login page will describe in some way to the user that if they already have an account on any Xap powered site then this account can be used to login to the FSA Students Portal
- In addition, this statement, or a similar one, will also be provided on the registration page. This is to try and eliminate the intent for users to create a new account when one is already established.
- Lastly, the registration page will notify the user, if the user tries to register with an email address that is recognized by the system, that they could use that existing account to login to the Students portal.

Application Flow

The login page will be accessible via the "myFSA" link on the left navigation pane. This link (or image) will only appear if a user is not logged into the system. Once a user is logged

in this link (or image) will not be present. The origination of the login request, as stated above, will come from the "myFSA" action. This can be invoked on pages hosted by Xap or by FSA. Once the user invokes this action they will be taken to the login page (at Xap). The user can either login or click a hyperlink allowing them to register. If they do not have an account and choose to register they will be directed to the registration page. If the user wishes to login they need to supply an ID and password which, when submitted, is authenticated against the Xap database. If the login is successful the user is taken to the referring page or the Students home page (if login originated from Xap the user will be forwarded to the referring page, whereas if it originated from FSA the user is forwarded on to the homepage). If authentication is unsuccessful the user is taken back to the login page with appropriate errors.

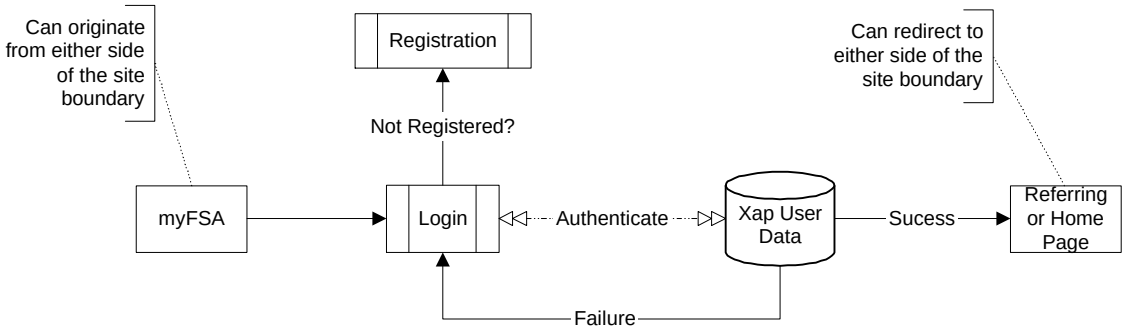

Figure 1 – Login Application Flow

2. Registration

Registration will also be performed at Xap. Therefore all users that register will first build a user profile on Xap's database. When navigating the site this profile will be sent to FSA if the user crosses the site boundary. If the user does not cross the boundary then the two user databases will be out of synch. This issue is addressed by running an automated script that will synchronize the data. This is discussed in more detail in the Data Synchronization and Storage section.

The registration process is only invoked from the login page, which is accessed through the "myFSA" link on the left navigation. When a user registers they are taken to a profile page where they can fill out their information. If the registration is successful a new user is created in the Xap database and the user is taken to the next page. If the registration is unsuccessful then the user is taken back to the registration page with appropriate errors.

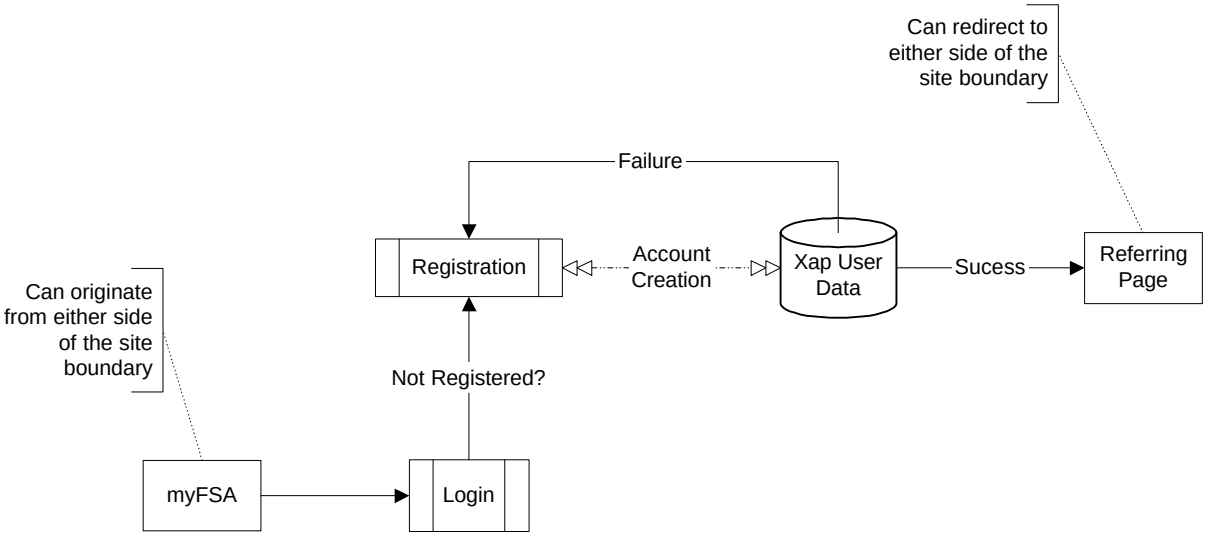

Figure 2 - Registration

3. Data Synchronization and Storage

Data Synchronization is essential to the success of this heterogeneous integration. This allows two separately hosted sites maintain a consistent look and feel as well as a seamless user experience. The following discusses data synchronization and storage in more detail.

It is important that FSA keeps certain pieces of profile information. Since registration is only done at Xap the data transfer module will allow Xap to share data with FSA when users cross a site boundary. There are many reasons why FSA would like to store profile information. Some of these include:

- Keep sufficient profile information for support purposes. If users have problems with their accounts or other questions a representative can help by looking up their personal information. This item only addresses support done by FSA.
- Allow for IVR integration when integrating with Consistent Answers.
- Single sign-on. When single sign-on is brought into the department having a mirrored user base will be crucial.

If in the future we need to store more information we can do so by expanding the data transfer module.

Since it is possible that a user could create or update their profile and not cross over the site boundary to FSA it has been decided to perform online profile synchronizations. This will be developed and invoked only by Xap. Simply put this is an automated script that will simulate the crossing of a site boundary using a particular username and password. This script, by pulling new and modified users from Xap's database, will run for each user that is found to be out of synch.

4. Security

Data Transfer

The transferring of data across site boundaries is crucial to the Students portal and its integration with Xap. During this transfer data will be passed via a hidden form posted using the SSL (Secure Sockets Layer) protocol. Since the password will be transmitted for authentication reasons, it is important to ensure that piece of data is encrypted. Therefore, before password data is sent across site boundaries it will be encrypted using a shared algorithm. This is to ensure the security of a password. The method by which this data is passed is discussed further in the Data Synchronization and Storage.

Login

Login, which will be hosted and performed by Xap, will consist of both Username and Password fields. The password field is in password format (<INPUT TYPE='password'>) so the users form input is masked by asterisks. This page is sent, via a POST, to a secure login page where the user is authenticated against the Xap user database.

Registration

Registration, also hosted and performed by Xap, will require the user to enter certain personal information. The required fields are the minimum fields necessary to build user's profile. This page is secure using the SSL protocol. Therefore the data being sent upon submission is encrypted. Some of this information entered by the user in the registration process will be stored on both Xap's and FSA's database. For more specific details on stored fields please see *Figure 9 -Profile Data Attributes*.

5. Internationalization

The Students portal currently supports Spanish and English for all pages within the portal (except for data driven areas: headlines and search). Due to time constraints and technical limitations all Xap pages will not be accessible in Spanish. This is a know concern and by working with Xap after Release II, the portal will fully support the Spanish language.

Currently the Students portal uses a properties file to support both English and Spanish versions of text. Please see the Preliminary Design documents for Release I for further details on the Release I application architecture. In Release II of the Students portal the application architecture will be different, therefore these property files will only contain portlet related information (i.e. DSN information, error messages, Oracle connection information). All versions of code and content (in both English and Spanish) will be supported, stored, and maintained by Interwoven.

6. Site Search

The current site search located on every page of the Students portal will be accessible and searchable from both Xap and FSA. If a user wishes to search when navigating on FSA pages they can easily do so since there is no need to cross the site boundary. However, when a user searches on pages that Xap is hosting the user (and their search query) must be passed across the site boundary. This passing of data and redirection can be setup fairly easily. Please see the diagram below to understand the integration better.

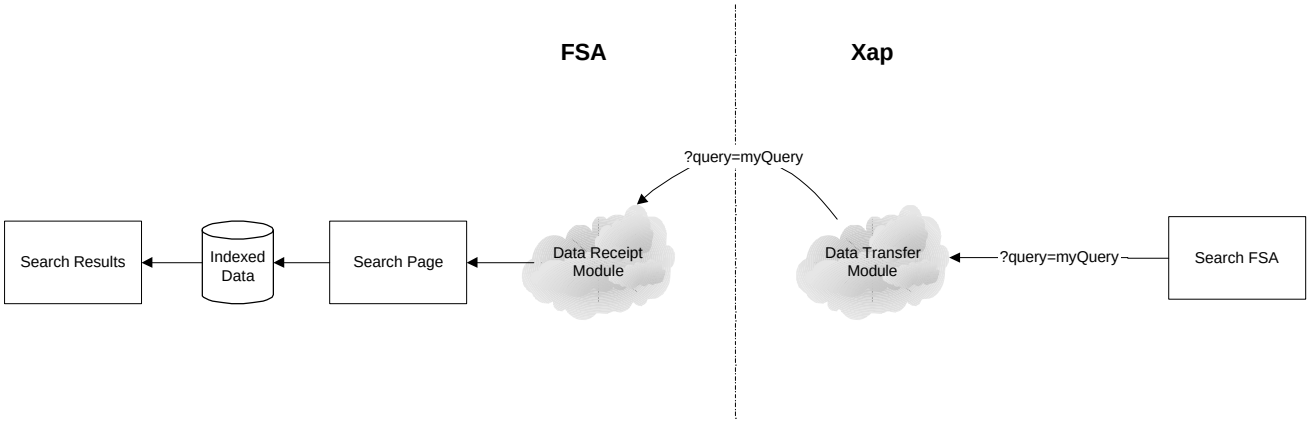

Figure 3 – Site Searching

Since pages will be hosted at Xap we will need to index, via an HTTP fetch, all of the pages. This includes pages that are hosted by FSA and Xap. Since Autonomy can be configured to "crawl" any URL then the entire site can be indexed and therefore entirely searchable.

7. User Interface Design

The UI, user interface, of the portal will need to be addressed so that functional and dynamic content can be delivered without the impedance of a site boundary. It has been determined that the following menu items will persist on every page when a user is logged in to the portal. These items represent the user profile in its entirety and are as follows:

Menu Item	Location* (FSA/Xap)
MyBookmarks	FSA
Add This Page to Bookmarks	Both
Introduction	Xap
Applications	Xap
Colleges	Xap
E-Mail	Xap
Profile	Xap
Financial Aid	Xap
Event Calendar	Xap
Careers	Xap
Planner Output	Xap
* Location refers to where these menu items link to when clicked	

Figure 4 – "myFSA" Menu Items

The following is a process flow outlining the mechanics of these menu items. If a user logs into the application while originating from the FSA then they are taken to the home page. If the user logs in while on Xap's side they will be taken to the referring page. These menu items are driven by login, therefore these items only apply to logged in users.

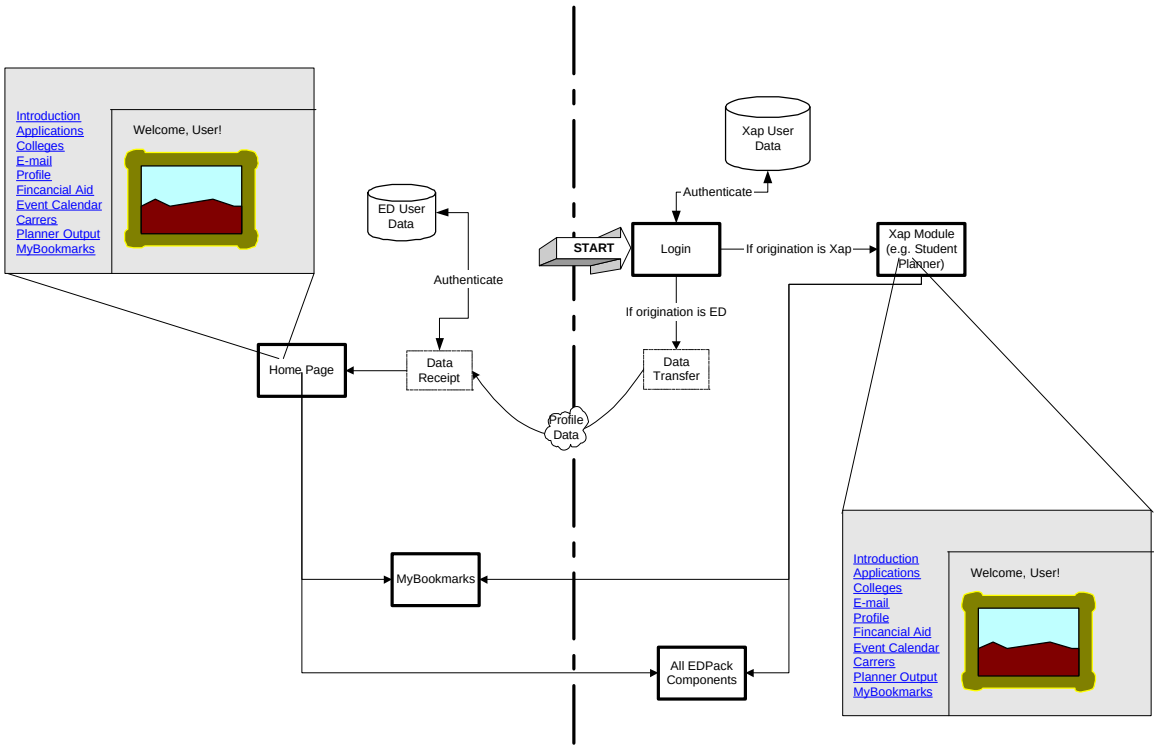

Figure 5 – UI Mechanics

Other changes to the UI include the following:

- Site Resources box will always be on the right hand side and will always fall underneath any content related boxes (e.g. Related Links)
- The search box will be moved to the left hand side of the navigation framework.
- The available languages selector will only reside on FSA pages since Xap will not support Spanish until a later release.

8. Transfer Module

The data transfer module will glue together both halves of the Students portal. It will be responsible for the seamless user experience since its primary responsibility is to ensure data is being passed across the site boundary. The following diagrams represent the data transfer and data receipt portions of the application. They show the process by which the transfer module will behave. Please note that the transfer module itself will consist of one JSP (Java Server Page) that will be the "request broker" to other actions (e.g. Logon).

Data Transfer

The Data Transfer portion of the application will be responsible for directing the user to the appropriate page while carrying any necessary data. For example the data transfer module would be utilized when a user wishes to view a page hosted by Xap. This hyperlink will take the user to the transfer page (xfer.jsp) where it will broker the request. Please see the flow chart below for more details regarding the transfer module.

Data Transfer

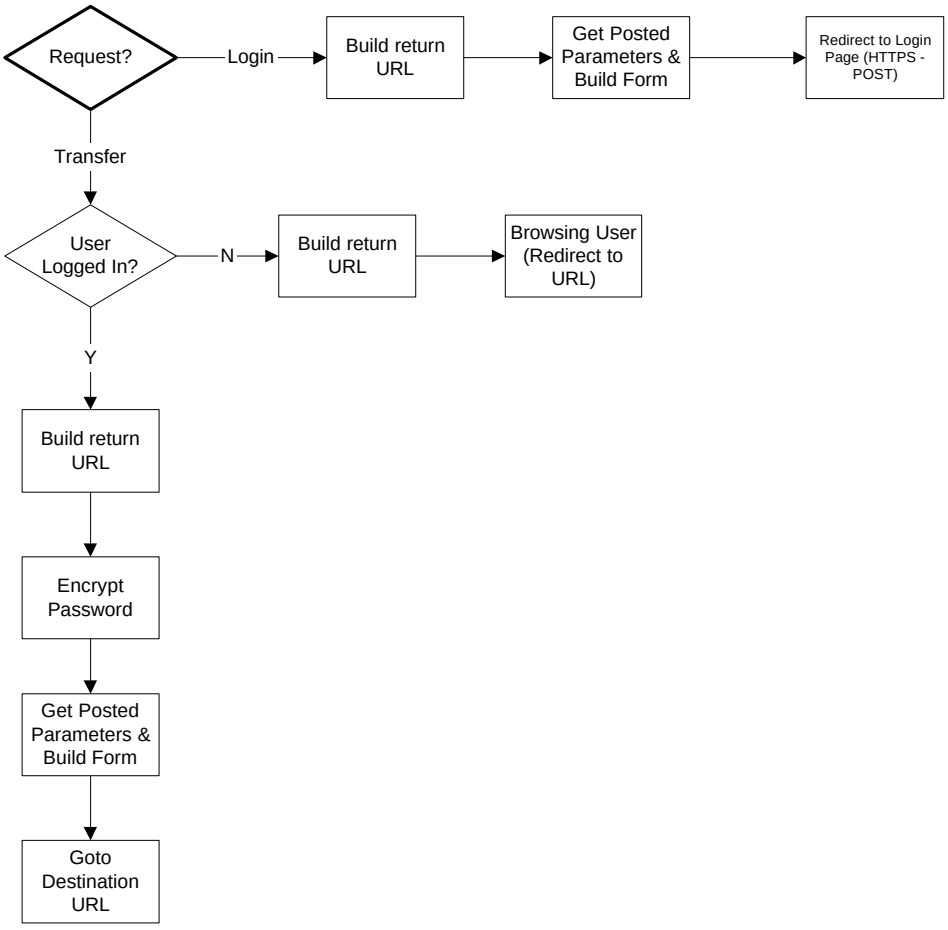

Figure 6 – Data Transfer Process

Data Receipt

The Data Receipt Module will be responsible for receiving the request from users coming from Xap. When a user is viewing a page on Xap's side of the boundary the hyperlink will point to Xap's transfer module which in turn submits a form that will have such an action: <FROM ACTION='xfer.jsp'>. This action will call our transfer module (xfer.jsp), which

will handle the incoming request. The diagram below shows more detail around the process by which the receipt module performs.

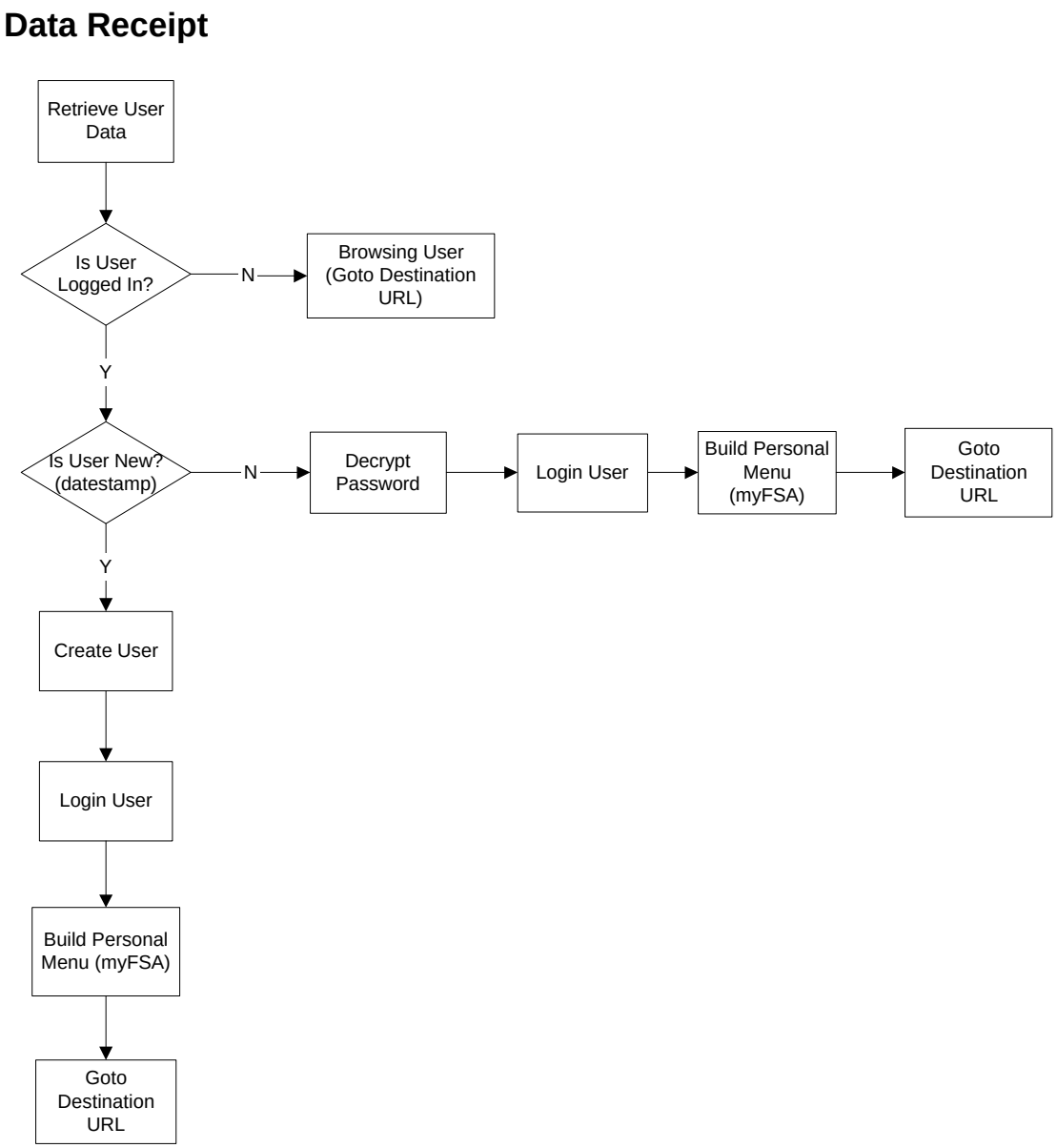

Figure 7 – Data Receipt Process

Data Fields

Certain data fields have been identified to help bridge the gap between Xap and FSA. These data fields represent a simplified user profile that has all the necessary data in order for both systems (Xap & FSA) to operate effectively. The table below is a list of data fields that will be passed between the two sites. This is also a representation of what data FSA will store in their user profile database.

Attribute	Data Type	Size	Required? (Y/N)	System Created?
USER_ID	VARCHAR2	50	Y	N
FIRST_NAME	VARCHAR2	50	N	N
LAST_NAME	VARCHAR2	50	N	N
EMAIL	VARCHAR2	100	Y	N
PASSWORD	VARCHAR2	50	Y	N
TELEPHONE	VARCHAR2	20	Y	N
DATE_CREATED	VARCHAR2	20	-	Y
DATE_MODIFIED	VARCHAR2	20	-	Y
DATE_OF_BIRTH	VARCHAR2	20	N	N
EDUCATION_LEVEL_ID	NUMBER	10	N	N
STATE_RESIDENCE_ID	NUMBER	10	N	N
COUNTRY_ID	VARCHAR2	2	N	N
PASSWD_HINT_QUESTION	VARCHAR2	?	Y	
PASSWORD_HINT_ANSWER	VARCHAR2	?	Y	

Figure 8 – Profile Data Attributes