Federal Student Aid (FSA)
Students Portal Project – Release 2

XAP Conceptual Design - DRAFT

May 31, 2002

1 Xap's Initial Approach

The excerpt below is taken from Xap's proposal document and depicts the application process flow as it would be when integrated with the FSA Students Portal. It is important to understand that this is an initial approach. The concept shown in Figure 1 shows how data is passed in order to "bridge" these heterogeneous sites. Heterogeneous is used here to refer to the fact that the application will be provided as two distinct parts, one hosted by FSA (at the VDC) and the other at Xap, but they will appear to the user as a single application.

From the Xap Proposal—
The primary difficulties of combining heterogeneous interactive sites into a seamless user experience are security, data consistency, and technical compatibility. The Xap conceptual design addresses each of these issues in an uncomplicated, yet effective manner.

The Xap design relies on the use of hidden HTML forms to hand off a user from one server to another. This is accomplished by transparently posting profile and authentication information whenever a user clicks on a link to a page that is hosted on a different physical site than the current page. This process is entirely client-side and synchronous. All data between the user's browser and the server would be encrypted using SSL and there is no requirement for synchronous server-to-server communication.

The technical requirements for such a solution are two modules on each side of the physical site boundary. These modules are a Data Transfer Module and a Data Receipt Module. Rather than pointing directly to content on the other side of a site boundary, each off-site link would instead go through these modules.

The Data Transfer Module is a single web page script with no visible user interface, responsible for collecting the common profile elements, logon credentials, and desired destination URL into a hidden HTML form. Once loaded, this form automatically posts itself to the Data Receipt Module URL on the other side of the site boundary.

The Data Receipt Module is a single web page script with no visible user interface that receives and collects the posted variables, updates the user profile, logs the user on, and seamlessly redirects the user's browser to the desired local destination page.

Throughout this design, the entire logon process is transparent. Moreover, since the user and the user's data travel together, the user will never see a profile inconsistency between the different sites.

Multiple Sites with Single Site User Experience

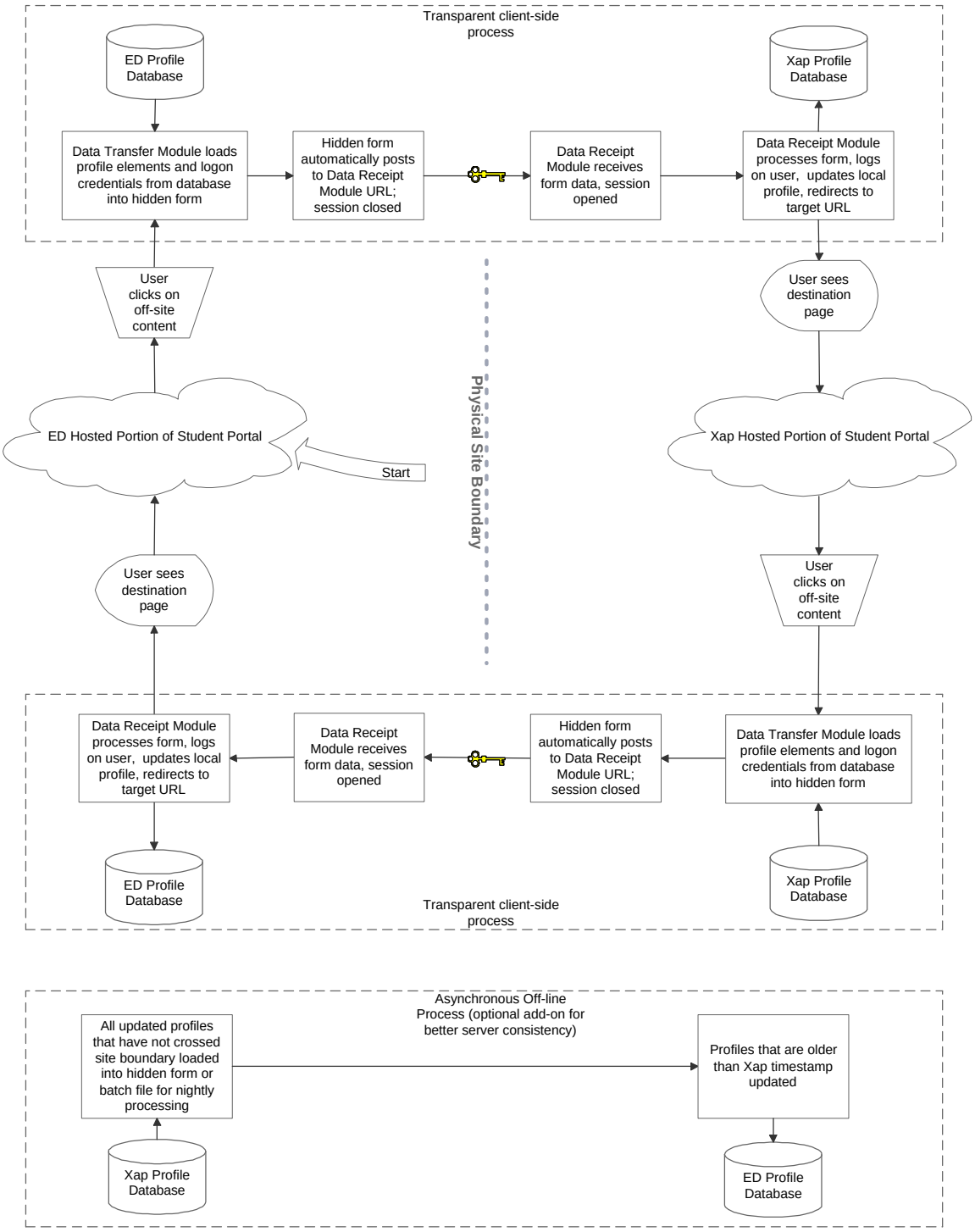

Figure 1 - *from Xap proposal*

Approach Amendments and Additions

2.1 Profile Data Storage

Ideally, all profile updates will be handled by ED. Therefore, if any user that is utilizing Xap's services on the Portal wishes to perform a profile update, they will be transferred over to the FSA portal. The idea here is to reduce the passing of information and the need to synchronize data. Therefore, FSA will only store profile information. However, the "EDPack" proposes a challenge to this paradigm. Further design sessions and discussions with Xap will flush out which profile attributes should be stored on which side of the site boundary. See the Section 3.1 for more information on the EDPack.

It has been identified that some of Xap's modules could potentially perform profile updates on Xap's side. For now this only believed to be the college admission applications module, which we'll not be incorporating in Release 2. As a result it is still unsure if any profile updating could be done on Xap's side. Nonetheless, the application will be architected (specifically the data receipt module) to handle and update changes if they ever were to come from Xap.

2.2 Login

Login will need to be performed on both sides of the site boundary to ensure each system can authenticate a particular user. However, it is important to note which logins are seamless and transparent to the user.

The login that is performed on FSA's side will remain as it is on the Students Portal. Xap will need to perform a transparent login for any user trying to access their services on the portal. This will be accomplished by leveraging FSA's Data Transfer module to pass the appropriate data to Xap. In this scenario, it is ideal to keep data storage on Xap's site as "light" as possible. An initial data load will be required to ensure that Xap has enough data to utilize their services. For example, Xap will need an initial set of matching user data to ensure these users can be authenticated when crossing over to Xap (note that this "authentication" is transparent to the user, thus the user only performs and experiences one login). The registration section will discuss new users.

2.3 Data Transfer

The transfer of data across site boundaries is essential to the overall solution. The portals team will be responsible for building two modules involving both data transfer and data receiving. The data receipt module will be responsible for handling data that is passed from Xap. Whereas the data transfer module will handle all data that is passed to Xap.

2.4 Registration

It is recommended that registration only take place within FSA. Therefore, it appears that the application must be architected such that it can "flag" when a user is new or not. This will help Xap's application determine if the data being passed to them is new or if it is an invalid user. When Xap receives data from FSA and is known to be new, a new profile will be created.

3 Suggested Module Integration

Xap has substantial amounts of content and functionality that can and will be leveraged. This will benefit the FSA Students portal by adding and expanding context around all student aid processes. Content integration will be discussed further in detailed requirements and detailed design in order to define exactly at what points a user would "cross over" the site boundary.

The suggested integration of Xap functional modules into the existing Students Portal content is as follows. Please also see the diagram included below.

3.1 EDPack (Personal Portfolio)

The "EDPack", as proposed, will store various data attributes associated with that user. This personal portfolio will store information such as colleges, calendar events, applications, profile data and more. FSA will likely store all of the profile information (a subset of the "EDPack") and rely on Xap to store all other information. However, FSA might be interested in storing this information as well.

3.2 College Search Tools

The College Finder, College Matching Wizard and Campus Tours tools will all be included under the **Choosing** section of the Students Portal. The search results from each of these tools can be saved to and accessed from the user's personalized account.

3.3 Financial Aid Wizard and Scholarship Search

Both the Financial Aid Wizard and the Scholarship search will be accessible via the **Funding** section of the Students Portal. The results from both of these tools can be saved to and accessed from the user's personalized account.

3.4 Student Planner

The Student Planner will be included in the **Preparing** section of the Students Portal and will allow users to keep track of grades and courses while planning for college entrance requirements. Once saved, this planner will also be accessible via the user's personalized account.

3.5 Career Matching Assistant & Interest Assessment

The Career Matching Assistant will be included within the **Attending** (career) section of the Students Portal and will also be accessible via the user's personalized account. Whereas the Interest Assessment tool will still fall under **Preparing**, **Attending**, and **returning students** sections.

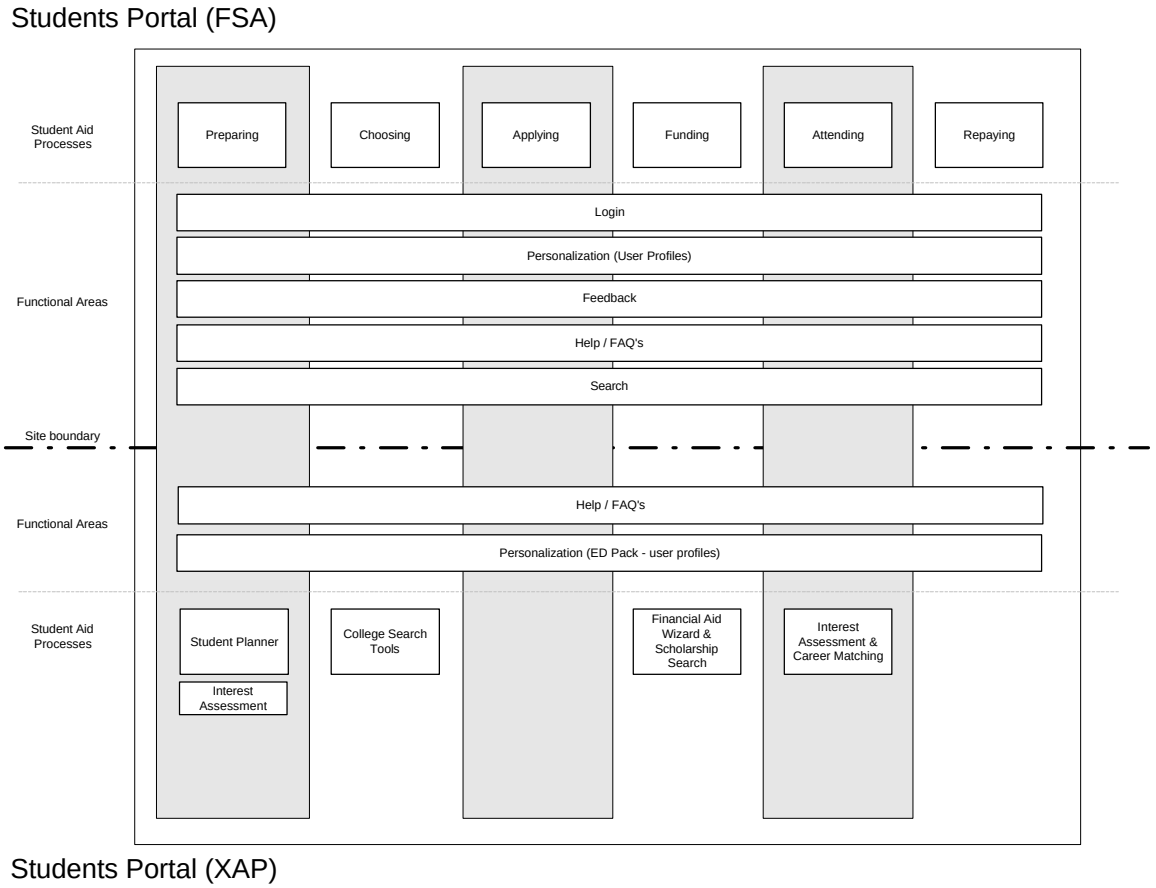

Figure 2 – *Module Integration*

4 User Interface (UI)

The user interface of the next release of the Students portal will remain the same as the current portal. Xap, in conjunction with developers from the FSA portals team, will design all of their pages to look identical to those of the current site. This will ensure that a seamless user experience across both site boundaries.

5 Internationalization

The current FSA Students portal supports two languages, English and Spanish. For the next release of the Students portal all pages that reside within FSA will support both of these languages. However, pages housed and hosted by Xap will only support the English language.

6 Privacy, Legal, and Security

Release 2 of the Students portal is expected to become a system of record due to the anticipated expansion of profile data that is to be collected and stored. More information on these exact profile attributes will be identified and documented during detailed design.

Data will be kept secure as it passes across site boundaries by using the SSL (Secure Sockets Layer) protocol. This will ensure a safe transfer of encrypted data. The portals team has plans to work with CIO frequently to ensure policies and standards are followed. Both parties will also participate in cooperative security reviews.

Lastly, content will go through a review and approval process to make certain that department policies are adhered to.

7 Integration Testing Approach

Testing the integration between Xap and the Students portal will be vital. Such interoperability will need to be tested as soon as possible. The portal team, during unit testing, plans to test this assimilation. This can be simply done by "dummying" a form submission so that it appears that it is coming from Xap then testing the expected results. In addition to receiving data, it is also important to "dummy" data transfer. This will also be addressed in unit testing by creating a simplified receipt module that will retrieve and display data received.