DRS Access for Mobile Devices
A Proposal for Library Lab

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Abstract: Mobile devices are an increasingly significant component of web usage, but the systems we currently have in place for discovery of and access to the digital resources stored in the DRS often work poorly on mobile devices. We propose a three-stage project to identify the needs of potential developers, to create an application programming interface (API) to the DRS, and to design an application for end users to find and display DRS content.

[This proposal is a substantially rewritten and refocused combination of two draft proposals submitted separately: "A Reusable Tablet--Based Application for Library Collections" and "The 'Treasures of the Harvard University Libraries' iPad App". It differs significantly from both of those proposals by shifting the focus to developing the API, and by opening the possibility of other avenues than an iOS app for the end-user interface.]

In recent years, Harvard has devoted increasing resources toward the digitization of its special collections, and use of that digitized material is increasing as well. For example, in March 2011, the Image Delivery Service served nearly 2.5 million image views, an increase of more than 25% from the same month in 2010. Currently, users of our digitized special collections search for materials in databases including HOLLIS, OASIS, and VIA, and view the results of their searches though interfaces such as the PDS and IDS. Because many of these programs were developed before smartphone browsing was a means of access, they are often difficult to use on such devices, and fail to take advantage of their capabilities. As mobile web browsing continues to increase, our patrons will expect us to provide access to our digitized resources that matches the desktop experience. We propose a three-phase process to reach this goal:

Phase 1: Investigation
Several of the projects funded in the first round of Library Lab proposals, including ExtraMuros and the Library Collections Slideshow Generator, may benefit from the use of the API that would be the product of Phase 2. Therefore, our first task will be to consult with these projects and other potential application developers about the desired functionality of a DRS API.

Discovery of DRS objects however will be handled though the use of the HOLLIS Mobile API developed at OIS.

Phase 2: API

The API will be a lightweight, REST-based service that will let an application navigate through a page-turned DRS object for instance by returning page-specific metadata in XML or JSON. It would also provide an authentication layer using the Access Management Service for delivery of Harvard-only objects within DRS. Depending on the status of the other library lab projects' API work, (namely ExtraMUROS and Library Cloud), this API could also be used to describe a collection to mobile applications and suggest to an application how its collections should be displayed.

During this phase, we would also investigate the use of adapting the open-source djakota jpeg2000 server (http://www.dlib.org/dlib/september08/chute/09chute.html) to provide a zoomable mobile web interface for jpeg2000 DRS objects in phase 3, as the current server software behind the Image Delivery Service does not support this feature at this time.

Phase 3: Discovery and Display Application

This phase will be devoted to creating an application with the API that will enable mobile users to locate and display digital objects in Harvard collections. The specifics of such an application will of course be determined by the information gathered in Phase 1, the capabilities afforded by the API, and the feedback gained from user testing, but we anticipate that it will permit the display of both images and page-turned objects, allow navigation and zooming on touchscreen devices, and facilitate use and sharing of digital images.

Implementation of this application will be initially designed using an HTML5-based javascript framework such as Sencha Touch (http://www.sencha.com/products/touch/). We may however still want to explore developing a small native iOS or Android application as a proof of concept, since our current developer team can develop an interface quicker using Apple's gui-based Xcode development tools and we have found that native apps to be much more stable than their identical mobile web versions written in frameworks such as Sencha Touch/jQuery.

Schedule & Proposed Funding

Chip Goines would be the primary developer on this project, but we would like to use resources from the Berkman Center if possible for user interface design work and additional programming in phase 3 if necessary.

Phase 1: 2-3 weeks = 21 hours of development/release time x $58/hour = $1,218
Phase 2: 5-6 weeks = 42 hours of development/release time x $58/hour = $2,436
Phase 3: 5-6 weeks = 42 hours of development/release time x $58/hour = $2,436
Macintosh hardware (if needed for phase 3 development): $2,000
Outsourcing UI design elements/programming to Berkman if necessary- $2,000