UC San Diego Mobile Framework Recommendation

Background

UC San Diego was one of few academic institutions to first establish a mobile presence (the first public University). This was accomplished via external resources that were contracted to build device -specific native applications (iPhone and BlackBerry) and a device agnostic mobile web (http://m.ucsd.edu). In early 2010, the vendor was bought out by Blackboard. Subsequently, Blackboard redirected their efforts to optimizing the Blackboard product for mobile devices, which left long term support of MobileEdu in question.

In addition, we have to invest in keeping up with the fast-paced mobile world or face falling behind due to:
- The rapid deployment of smart mobile devices that continue to be introduced to the market.
- The existing mobile browser-based web content (m.ucsd.edu) looking dated due to supporting the lowest common denominator for mobile browsers.
- The mobile content being hard to update due to dependency on external vendor resource.

Statement of Intent

The overall goal of this project is:
- To establish a campus mobile strategy
- To identify frameworks and tools to implement the strategy
- To actively contribute to a framework in collaboration with participants outside UCSD.
- To conform to **mobile web standards** such as W3C Mobile Web Best Practices

By not developing a campus mobile strategy:
- We remain dependent on external resources (TerriblyClever/BlackBoard) to meet our needs. There is an ongoing cost and enhancement limitation with this approach.
- Individual campus entities will address their own mobile requirements with ad-hoc funds and approaches. This type of response would increase future aggregated cost across the University.
- We elevate institutional risk as there is no standard strategy to deliver secure mobile content.
- Our mobile presence continues to fall behind or diminish.

Analysis Summary

A focus group, consisting of IT-leads across the campus, took part in evaluating and defining the recommendation for a campus mobile framework. The following campus departments were represented in this group:
- Academic Computing and Media Services (ACMS)
- Administrative Computing and Telecommunications (ACT)
- Biological Sciences
- The Colleges
- Libraries
- Scripps Institution of Oceanography (SIO)
- Student Affairs

The following steps took place in the evaluation process:

Step 1. Identify relevant mobile frameworks and perform a quick review based on technology, industry standards, cost, maturity, and supported platforms. The following frameworks were reviewed: UCLA Mobile Web Framework, MIT Mobile Web Project, SproutCore, PhoneGap, jQuery Mobile, WebApp.Net, Sencha Touch, iMobileU. This is the link to the reviews:
https://spreadsheets.google.com/pub?key=0Akg5Mmp3HZPZdGRzTWtUbTFUUkFZWmQ4RE9qMXEydFE&hl=en&output=html

Step 2. Select the top candidates from above list and create working proof-of-concept apps. Based on the reviews, **UCLA Mobile and Sencha Touch** best met our goals of:

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- Delivering functionality via the mobile web browser
- Framework developed using primarily front end technologies
- Rich feature set

In addition, **jQuery Mobile** was a desirable technology that could possibly provide UI element to any chosen framework.

Step 3. Perform in-depth review of proof-of-concepts of chosen platforms. 5 different campus entities (IT/programmers) presented their proof-of-concept mobile applications of UCLA Mobile, and Sencha Touch to the focus group. The following categories were addressed: ease of use, framework features, documentation, cross-platform support, maturity, extensibility, learning curve, and integration with our campus CMS.

Step 4. Make final recommendation. Based on the defined evaluation criteria, the **UCLA Mobile Framework** was selected. In addition, the UCLA Mobile Framework team clarified their plans for sustainability, documentation, collaboration, and licensing.

Recommendation

UC San Diego recommends leveraging the **UCLA Mobile framework**, a standards-based lightweight mobile framework which supports all mobile devices that contain a mobile web browser. The following summarizes why it was chosen:

- It is a mobile browser framework, meaning it is device agnostic. This reduces the need to create and maintain platform-specific "apps" as new operating systems emerge.
- It is a "front end", meaning different applications can leverage the framework without needing to be collocated on the same server.
- It is technology-independent, meaning applications can leverage the framework regardless of whether they are built in JAVA, .NET, PHP, etc.
- It detects the type of device accessing the application using the framework and tailors the user experience to the features of the device.

Implementation

The framework itself is a library of CSS, Javascript, remote server-driven utilities, and images. Based on the user agent and other telemetry taken of the visitor's device, the framework guides page styling and functional assets. The framework will allow developers to avoid detailed device-by-device planning and implementation, instead providing an abstraction layer for developers, the framework itself the only piece that must make device-by-device determinations as long as developers employ its standards.

The framework will require a central server (Shibbolized Apache with PHP enabled) and will host the front splash page, as well as CSS, Javascript, utilities, and other assets, and the scripts that serve them to client applications.

UC-Wide Adoption

UC San Diego supports the effort of a UC-wide adoption of the UCLA Mobile Framework and would be available to help present this recommendation to the UC-wide ITLC and ETLC groups. UC Berkeley will launch their mobile apps in the Spring based on the UCLA framework. UC Riverside and UC Davis are evaluating.

Supporting Documents

Selection Criteria	See below
UCLA Mobile Web Framework Documentation	mwf.ucla.edu
UCSD Mobile Web Framework Documentation	uxt.ucsd.edu/mobile

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Selection Criteria

Mobile Framework Goal

Our goal is to provide a campus-wide mobile framework that can be leveraged across a distributed environment so mobile web applications and websites can be tied together through a common user interface.

Evaluation Guidelines:

1) Develop a proof-of-concept application with the selected Mobile Technology within the following guidelines:
    a. One main/landing page, with at least two links 1) UCSD News RSS feed, 2) UCSD YouTube XML feed
    b. RSS feed: Use http://ucsdnews.ucsd.edu/rss/top_stories.xml to display relevant information if it is available, i.e. author, publish date, picture, etc. Select article to view it.
    c. XML feed: Use http://gdata.youtube.com/feeds/api/users/ucsandiego/uploads?v=2 to display the list of videos with preview pictures and duration. Select video to view it.
    d. For bonus points add UI elements from JQuery Mobile: http://jquerymobile.com/
2) Put together a 10-15 minute presentation to address the proof-of-concept development process, and the evaluation criteria listed in the table below.
3) Include tools, technologies, installation process, app development process, scripts, running demo in the presentation as appropriate.

Review and Selection Information Criteria:

- Technology should be sustainable over a 1-2 year period of time.
- Technology should include open source or industry standards as much as possible.
- Support various mobile devices.
- Require little training for development.
- Easy to migrate into a new technology in the future.

Evaluation Criteria: (1-10) 10 = Best

	Sencha Touch	UCLA Mobile	
License Cost			
OOTB Feature Set			
Industry Standards			
Documentation			
Ease of Implementation/Adoption			
Learning Curve			
Time Required to Implement			
Maintainability			
Scalability			
Cross-platform Support			
Run in Mobile Browser			
Extensibility			
Availability/Maturity			
End User Usability			
End User Accessibility			
Integration with CMS			
Total			