

CASE STUDY



Enhancing the Patient Experience

Harris Mobile Patient Engagement Platform



As a patient, when health issues start cropping up, you sit up and take notice. You get proactive about researching, tracking, and managing progress. Questions such as how can I access test results faster without waiting for a call from my doctor? Is there a way to track all my medications and its impact? Can I access my medical history, schedule appointment, and communicate with my physicians in one spot via my mobile?

“Working with a company that had basically seen every combination and permutation of mobile technology was critical in the selection of Macadamian as a software development partner.”

—Neil Ferguson, Director Engineering
Healthcare Enterprise Solutions,
Harris Healthcare Solutions.

Taking the Next Step: From Web to Mobile

With healthcare providers facing regulatory changes, rising costs, and patients and clinicians looking to access information on the go, Harris Healthcare Solutions sought to enhance their FusionFX® patient and provider portals with mobile versions to enable mobile clinical working, and patient access to medical information and care teams. At the onset of the project, the engineering team was looking to develop mobile apps for iOS and Android that could be customized or white-labelled by healthcare providers.

Making the Right Technology Choice

Harris Healthcare Solutions was looking to develop a mobile solution for its customers and wanted to find the right partner to help develop innovative applications. Harris Healthcare turned to Macadamian, a leading mobile technology provider.

Native versus Web?

The existing patient portal web application was integrated with a REST API architecture on the backend. The backend REST API servers not only housed and provided access to the application data but also provided the required authentication and security. Any mobile solution would need to be able to integrate with this existing back end architecture.

The challenge was to figure out how to best translate the web based experience to a responsive mobile first framework while meeting privacy, security and Meaningful Use requirements, and providing flexibility to support a modern user interface (UI). The following technology options lay before the team.

“Thanks to the whole Macadamian team for helping us deliver the mobile solutions our customers require to accomplish their mission!”

—Neil Ferguson, Director Engineering
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- **Option 1.** Implement a full native application in Objective-C for iOS, and Java for Android to provide the optimal user experience and responsiveness. The downside with this option was it did not allow for any Client side code sharing between the two platforms, would require significantly more effort to develop and maintain, and require more effort to enable brand customization.
- **Option 2.** Develop an HTML based mobile app using PhoneGap. After some quick prototyping, it turned out that issues with screen readers would make accessibility compliance more difficult. The team uncovered the fact that screen reader support was even poorer when frameworks such as Kendo UI and Sencha Touch 2 were tried. The problem is that these frameworks are “thick” and got in the way of the screen reader. The solution was to use a Foundation, a lighter framework. It was recognized that the screen reader support for an HTML app would not be as good as native but preferable to the aforementioned thicker frameworks.
- **Option 3.** Build a hosted mobile web app that users could access from a mobile browser. The downside of this option was that it would be harder for users to discover and would have limited platform integration.

After considering all the options carefully, the team elected to go with an HTML architecture based on PhoneGap which would allow for static HTML, CSS, and JavaScript files to be bundled into an app that could be distributed to the Apple and Google Play App stores. The application data would be received in JSON format via a RESTful web service with authentication provided by a CAS server.

Increasing Patient Engagement

The result? A set of iOS and Android based mobile patient engagement applications aimed at increasing patient retention with a range of functionality that includes: a patient dashboard (My Health Summary, Allergies, Medications, Immunizations), secure patient-health provider messaging, calendar (Appointment Scheduler, Hospitalization and Visits) and attachments (Lab test Results), and access to educational health information. Both mobile apps were tightly

integrated with Harris' FusionFX® backend server in addition to providing customers the ability to customize the brand look and feel of the mobile application.

Turns out, together with Macadamian, Harris Healthcare Solutions was able to enable its customer, a major U.S. health system, to be the first to launch the new FusionFX® mobile patient portal in the spring of 2015.

Thank you.

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