

SUCCESS STORY FOR MOBILE APPS DEVELOPMENT

BACKGROUND

The client came forth with the idea of developing a customized Business Intelligence Web based tool that connects consumers to restaurants based on their proximity and preferences by using complex predictive modeling. For consumers to reap the benefits of the services at any time and from any location the client collaborated with Enosis Solutions to design an application for iPhone and iPad devices with the same functionalities. Similar to the Web Application, the mobile application would match individuals to the best local restaurants via offers, events and promos. There was the need of a system which would be strongly focused on performance and yet be very easy to use.

THE CLIENT

SpoonByte is a US based “software on demand” service provider offering iPhone & Web app that allows restaurants to create promotions (e.g., meal discounts, menu specials, or events) to increase revenue. It’s the first app that serves the food industry by focusing on Match-Based Deal Dissemination for the physical marketplace.

SpoonByte intelligently sends each promotion only to consumers that are near the restaurant and are predicted to act on the promotion and visit the restaurant.

CHALLENGES

- Defining an architecture to satisfy the application’s ambitious requirements. The application must function as both a native application for iPhone as well as a web application working from the device
- Switching from .NET framework to Cocoa
- Using Objective-C to develop the application since it is different from the traditional languages in use such as C#, Java etc.
- Objective-C differs from traditional languages in
 - Memory management.
 - Concept of message passing.
 - Language syntax.
- Designing the solution to achieve extremely low latency in information retrieval and high throughput
- Sending notification to the application from server
- Creating a user friendly page/data refresh mechanism for the device so that users can view and select updated deals and offers
- Support data persistence when server access is unavailable or when server is offline
- Show geographic information about restaurants on a map
- Present information that is customized according to user’s current location

ENOSIS SOLUTIONS’ APPROACH

The client collaborated with Enosis to build an application to address these extremely challenging requirements. Enosis designed a powerful and flexible application that can be useful to consumers in their daily life for connecting to the restaurants that match their choice of food and budget and at the same time help restaurant owners drive sales growth and profitability. The solutions to each challenge were provided by a well-planned and proactive approach which involved an efficient application development model.

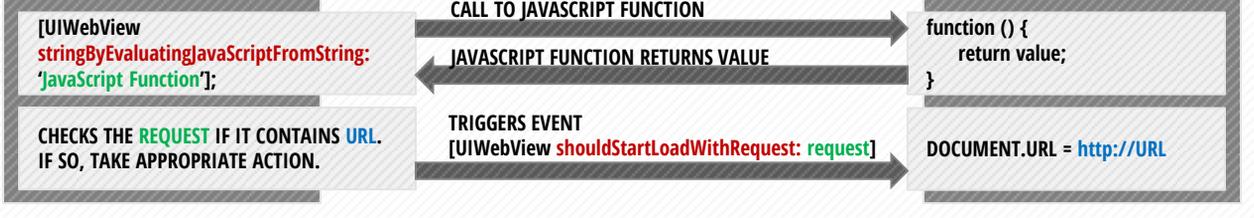
SpoonByte in iPhone



HTML to Objective-C

OBJECTIVE-C CLASS RESPONSIBLE FOR PRESENTING HTML CONTENTS IN UIWEBVIEW

HTML CONTENT PRESENTED IN UIWEBVIEW CONTROL



ENOSIS' APPROACH (CONT.)

There are three types of iPhone applications:

- Basic iPhone application: An application developed using only the iPhone SDK to run natively on iPhone OS-based devices.
- Web-only content (including web applications): These websites that are customized to behave like built-in iPhone applications.
- A hybrid application: An iPhone application that provides access to web content primarily through a web-content viewing area (UIWebView), and includes some iPhone OS user interface elements.

After thorough analysis of the requirements Enosis chose to build the application as a hybrid having both native iPhone interface elements and web application features. This was done because of two major reasons:

- To enable contents to be shown in WebView using html. Hear Enosis's team of developers used their extensive experience and knowledge of Html, CSS and Javascript.
- UIWebView supports additional CSS rules (WebKit rules) that help to show high end graphics with little effort.

Even though the application was hybrid, Enosis wanted to make it look native so that the application became more user-friendly for regular iPhone users. That is why all of the navigation controls were native. Enosis used UINavigationController and UITabBarController for navigation.

Loading html pages from the server can result in slowing the application down significantly especially when many users log in simultaneously. The Enosis team designed a methodology to overcome this problem. All of the Html pages were stored in a local file system. When loading a page in UIWebView, AJAX request is sent to server, which returns JSON data and that data is loaded to the page using JavaScript.

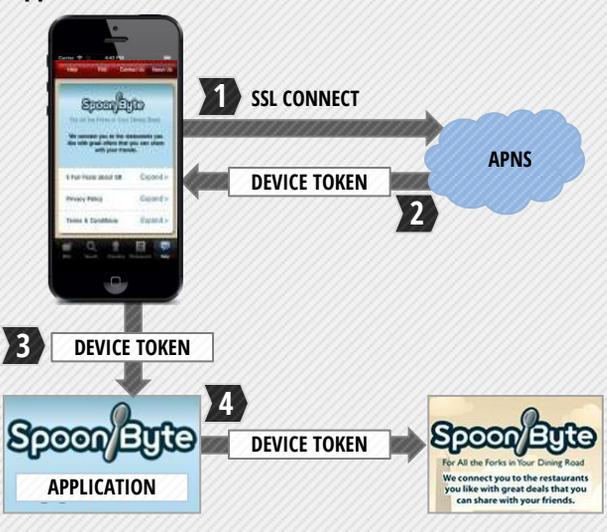
Next a process needed to be implemented to efficiently communicate between Cocoa and JavaScript. Therefore information was pulled from UIWebViewControl by executing a JavaScript function which sent a message to UIWebView delegate. Information about changes was sent by JavaScript by raising an event to UIWebView delegate.

Apple Push Notification



Enosis solutions used Apple Push Notification Service to send notification and alerts. It is a robust and highly efficient service for propagating information to and from devices such as iPhone, iPad, and iPod touch devices. Each device establishes an accredited and encrypted connection with the service and receives notifications over this persistent connection. If a notification for an application arrives when that application is not running, an application badge number is updated and an alert appears.

Apple Push Notification Process



ENOSIS' APPROACH (CONT.)

To refresh page and data, Enosis used well-known "pull down to refresh" control. This is used in popular applications like Facebook. Moreover the option of refreshing page from navigation stack or from tab bar controller whenever a view is presented was also included.

To support data persistence when server access is unavailable Enosis used LocalStorage (A key-value pair dictionary data structure) which is a feature of HTML 5.

By integrating Google's Map Api the visual geographic information was presented and to show information customized by user's current location iOS's 'Core Location Framework' was used.

The Core Location framework can determine the current location or heading associated with a device.

SpoonByte Showing Map in iPhone



DISCERNIBLE BENEFITS

- The application achieved and exceeded every performance target specified in the requirements.
- It was user-friendly and accurately determined user preferences based on location.
- This application allowed consumers to receive the core features of the Web Application while being mobile.
- Since information from the application mostly uses the storage available in the main server it does not take up space in the device.

Pull Down to Refresh Feature



TOOLS AND TECHNOLOGIES

Programming Language: Objective C, JavaScript

Framework: Cocoa

Operating system: MAC OS

Platform: Xcode

Data transfer protocol: JSON

Web Programming languages: AJAX, HTML, CSS