



**DELIVERING
WIFI INTERNET
CONNECTIVITY ON
THE AIRPLANES**

The Client Overview

Our client provides an in-flight broadband internet service on U.S. domestic flights allowing passengers to use their laptops or PDAs and enjoy a true high-speed internet experience - from full-on web surfing, to real time e-mail with attachments, streaming video, transferring large files, and accessing corporate VPNs. For domestic operators flying in the continental U.S., this in-flight internet is the logical choice for true high speed connectivity in flight, providing passengers virtually all of the same internet capabilities they are accustomed to on the ground.

Our client offers industry's largest selection of network services to give wireless operators a true choice in connectivity solutions for passengers flying on an aircraft. It is the only company to offer high-speed data capabilities to business aircraft operators over more than one network.

Engagement situation & Challenges

Our client network utilizes the latest 3G mobile wireless technology, operating in the continental U.S. over an advanced network of ground stations and its exclusive air-to-ground broadband spectrum.

Our client already had a web application for providing its in-flight services. Our client was looking for a solution that would allow their users to access these services through native mobile applications. The objective was to build mobile applications for BlackBerry and iPhone users. Our client's vision for the native application was to provide connectivity to Wi-Fi in an easier manner.

Our client's infrastructure for enabling internet connectivity in the airplane consisted of a server located in the aircraft cabin, so that the users can connect with the server via Smartphone. This server connects with the ground based services for authentication and then provides the internet service for such authenticated users. The internet service is distributed throughout the cabin via a Wi-Fi system. Our client was looking for a partner who will understand the demands of a fast growing successful technology company, had the expertise in developing, porting and testing cross-platform mobile applications. The partner company was expected to have demonstrated experience in development of mobile application on Blackberry and iPhone platforms.

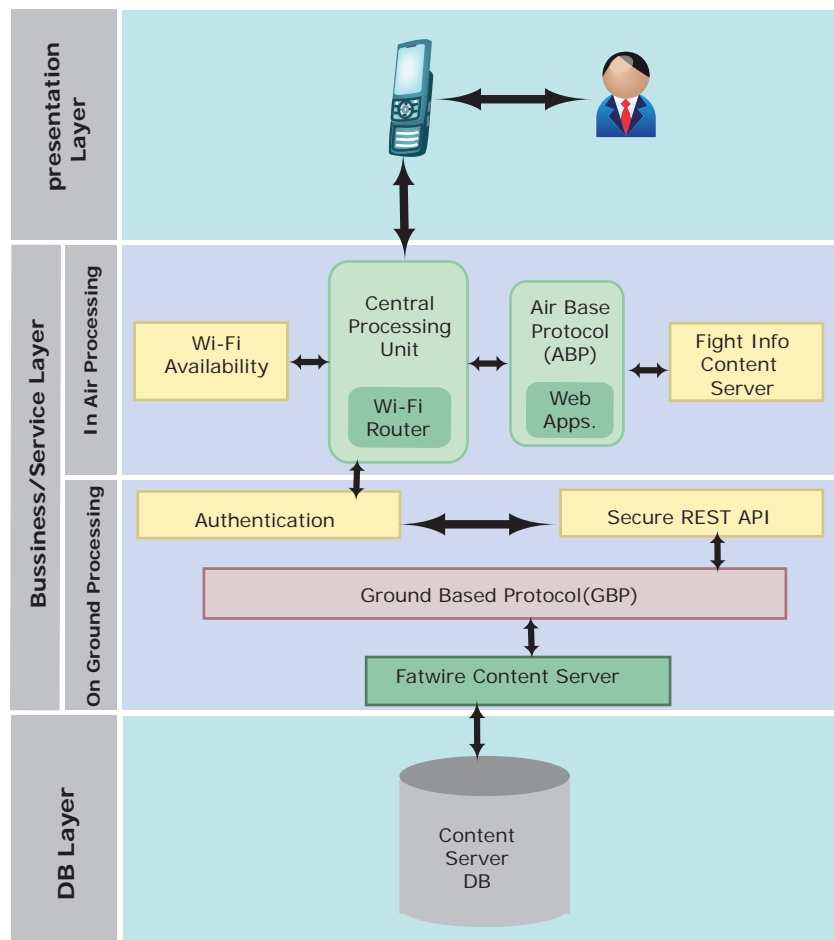
Some of the key business challenges included:

- The application had to be supported across various Smartphones beginning with iPhone and BlackBerry
- Going forward the application had to be ported across Android and other Smartphones with minimum possible changes to achieve quick-time-to-market
- In addition to the Smartphone devices, our client wanted the iPhone application to be available on iPad

- The application had to adhere to federal laws and airline security standards like auto-switching off all network connections during take-off and landing
- The application had to be available during the course of flight using the in-flight Wi-Fi service
- Auto detection of Wi-Fi service provider had to be implemented

The developmental challenges included:

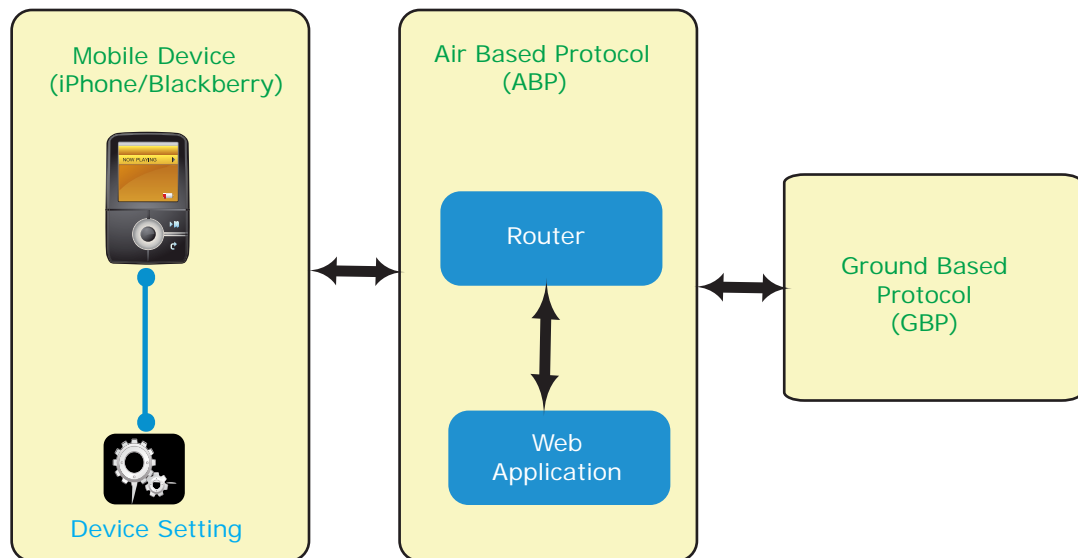
- Building a test environment to simulate in-flight conditions
- Automatic detection and setting precedence of client network amidst all available networks
- Maintaining interface connectivity points with the ground based server



Xoriant's contributions in engagement

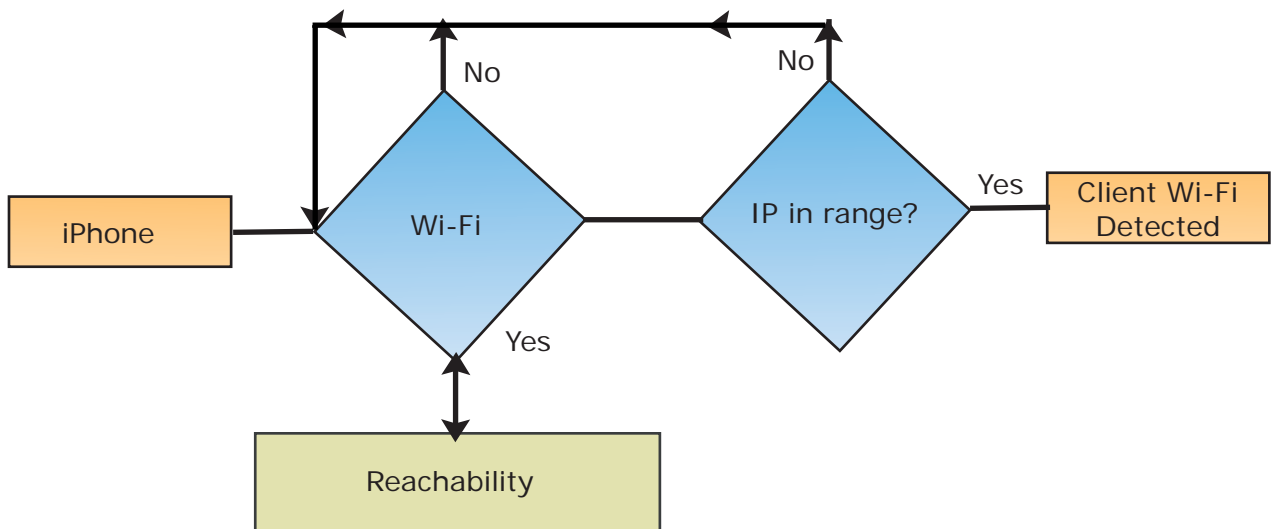
Xoriant, with its Mobile Centre of Excellence, multiple successful engagements in the areas of mobile application development, technology leadership in mobile and very effective price performance was selected as a technology partner. Xoriant's Mobile Centre of Excellence comprises highly skilled engineering team with ample experience in working with multiple clients in a similar engagement. The team has successfully leveraged its deep domain knowledge, technical competency and mature processes to deliver end-to-end solutions and services to a host of clients across geographies in the mobile space.

Xoriant's team worked closely with our client to understand the requirements and created an engagement roadmap. As our client's current solution was already being used by millions of users, it was important for the Xoriant team to come up with scalable, modular and secure architecture for mobile application. Xoriant recommended use of secure API based REST architecture and modular development pattern to easily extend the development to multiple Blackberry devices like Curve, Bold and Pearl series.



- Xoriant was involved in the entire SDLC process of building the native application from requirements gathering to sustaining product support.
- Our team made special efforts to learn about the specialized Wi-Fi equipment used by our client to be able to configure it properly to simulate the cabin based server.
- Our team also established a secured connection between the local QA environment and client's test simulator to facilitate near-perfect replication of in-flight conditions.

- We designed and developed a single application for the entire family of Blackberry handsets.
- All the applications are compatible with App Store as well as BlackBerry store standards. Our team also helped our client in the submission process.
- Our team devised a work-around for iPhone since Apple does not provide support for auto-detection of active Wi-Fi connection using SSID (Service Set Identifier). Apple also does not support the usage of 3rdparty frameworks used to detect Wi-Fi connectivity. (Just recently, Apple has removed applications using private frameworks from their App Store. http://news.cnet.com/8301-13579_3-10464021-37.html). Xoriant team adopted a custom implementation plan as follows:
 - o Detect active Wi-Fi connection using the existing Reachability APIs.
 - o The client network broadcasted a valid range of IP address on their Wi-Fi network. This application detected this range to establish the presence of the vendor's Wi-Fi connection

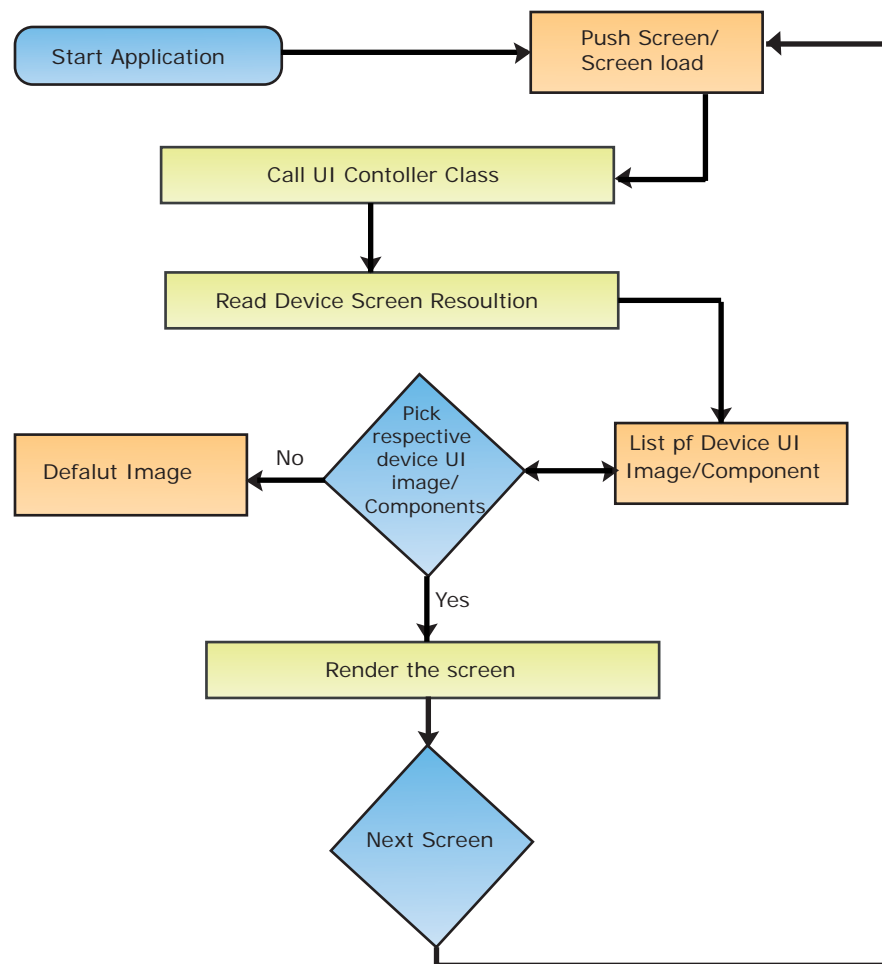


Xoriant's solution enabled our client to offer seamless user experience for the customers coming from web portal to state-of-the-art native phone applications (iPhone, Blackberry).

Some key aspects of the design and implementation phase were:

- Xoriant teams used our proprietary 'Xoriant Smartphone Accelerator'™ (building blocks providing a well tested and feature rich set of components) to help speed the application development process. These included components like Networking, UI widgets for iPhone & BlackBerry platform.

- Xoriant teams suggested better usage of Blackberry & iPhone APIs by saving customer credentials for a better user experience.
- We suggested design of stubs to simulate the in-flight services environment.
- Since our client wanted a single application for multiple Blackberry devices, Xoriant team designed a program which dynamically decided the sizes of all UI components & backgrounds relative to the device screen. This program then intelligently picked the correct set of images based on these controls.



The 'Xoriant Smartphone App Accelerator'™ is a set of building blocks that speed up application development. The building blocks provide a set of features that we have seen common across various applications that we have developed. The building blocks provide a well tested and feature rich set of components, using which you can rapidly build your application. These have been identified through real world experience of developing several Smartphone applications. The Xoriant Smartphone App Accelerator™ is built on the premise that irrespective of the business functionality that you plan to

build in your application, there will be a set of common building blocks upon which the application will be built.

| | | | |
|---------------------------|------------------------|----------------------|---------------------------|
| Application Configuration | Location Based Service | UI Widgets | Social Media Integration |
| File/Database Management | Audio/video | Utilities | Auto Update |
| Networking | Telephony Module | Sensor Management | Synchronization Framework |
| Security | Logging Framework | Internationalization | MVC Framework |

Building blocks of Xoriant Smartphone App Accelerator™

Tools & Technologies

- Sun Java Development Kit 1.5 or higher
- Blackberry JDE 5.0.
- RIM and client APIs
- Blackberry Devices: Curve, Bold, storm and Torch
- Apple iPhone, Xcode 3.2.3 and iOS SDK 4.0.1
- Reachability APIs

Benefits:

- Xoriant's Smartphone App Accelerator™ allowed the team to add the basic mobile phone functionalities in 40% less time and have more time to focus on innovative features. These Xoriant proprietary frameworks also ensure rapid development of subsequent mobile applications.
- Xoriant's experience in designing, developing and obtaining approval of iPhone and Blackberry applications at their respective stores significantly accelerated our client's timelines.
- Our client was able to get good traction for the application that was submitted in both the stores. This in turn helped our client in building a larger user base for their internet services.

Client Testimonial

Xoriant's proficient engineering team has enabled us to deliver a robust product within the aggressive release schedule. They also showed a great deal of adaptability within their stringent QA process to ensure an error free release. I would like to acknowledge the remarkable efforts of all Xoriant team members for making this project a Great Success.

- Project Director