

eGovernment in a Mobile World (January 2010)

Introduction

The way people access and use the Internet is changing. An increasing number of individuals are accessing the Internet using a mobile phone. According to the March 2009, report from ComScore, 22.4 million users in the United States now access the Internet daily using a mobile phone. This is double the number of users in 2008. Monthly users of mobile Internet grew 71 percent from 36.9 million to 63.2 million in the U.S during this past year and this number is expected to continue to climb rapidly.

This whitepaper explores the potential for government to leverage the power of smartphones to provide new and enhanced services to citizens, businesses, and employees. Enhanced websites and applications designed specifically for mobile phones are covered. Government applications for smartphones are also discussed.

Smartphone Growth

While much of the attention has been focused on the iPhone, Palm Pre, Blackberry Storm, and other “smartphones”, nearly 30 percent of mobile Internet users are using standard cell phonesⁱ. Nevertheless, smartphones are expected to continue to capture the largest share of the growing mobile Internet market. Smartphones are expected to grow to 38 percent of all handsets by 2013 and 41 percent of consumers are expected to choose a smartphone as their next cell phone purchaseⁱⁱ.

Smartphone Capabilities

Although there is no industry standard for what qualifies as a “smartphone” typically these devices are more like a small computer than a basic cell phone. Most smartphones share a common set of features. These include a camera, GPS capability, the ability to run applications, and the ability to access the Internet. Other features may include:

- Audio and video recording and playback
- Touch screen
- Accelerometer
- Electronic book readers
- Separate alphanumeric keyboard

Smartphones offer more than just the ability to browse the Web. Users are leveraging the new capabilities of these phones to perform a wide range of activities. Most of these devices have a built-in camera, GPS, touch screens, and other advanced features. As will be discussed below, these features provide very compelling possibilities for providing new services as well as a new delivery channel for eGovernment.

As mobile devices with access to the Internet become increasingly integrated into people’s lives, the big issue is not whether government should become involved in mobile technology, but how can it harness the power of these mobile devices to create efficiencies and provide improved and new services for individuals and businesses.

A two-pronged approach to leveraging mobile technology

There are two primary approaches to mobile Internet technology. The first is the “mobile browser”. In essence this is the same “Web-like” information that is available using a PC or a Mac but presented in a manner that is compatible with the smaller screens found on mobile devices. The second approach is “mobile applications”. These are computer programs that are designed specifically for mobile devices and that may leverage the enhanced capabilities of the smartphone.

Mobile Browsers

Government Websites have been providing mobile access to their PC-based web sites for a number of years. Many of the mobile versions simply strip away pieces of content and present the header information in order to the address the smaller screen size of these devices. Typically the user navigates through the Web site and select “mobile” for the Web site to present information in the mobile format. However, recent technology developments have created new opportunities for government to present information in an entirely different way for mobile devices.

Recently, some Web sites in the private and public sectors are taking advantage of the enhanced capabilities of smartphones to provide an enhanced browser experience. When accessed by an iPhone, Web sites such as CNN.com, Utah.gov, and Walmart.com automatically recognize the smartphone device and present the content from the website in a different format.



Image of Walmart.com on PC



Image of Walmart.com on the iPhone



Image of Utah.gov on PC



Image of Utah.gov on the iPhone

The mobile version of these advanced Web sites take advantage of the touch screen capabilities of the iPhone and iPod Touch to make accessing information quicker and easier process.

Mobile Applications

Although mobile applications have been around for a number of years, the introduction of the Apple iTunes App Store fundamentally changed the way applications were developed and made available to users. Previously, applications for mobile phones had been very limited. By opening up the development of mobile applications to all developers, the iTunes App Store made it possible for a large number of applications to be developed and released.

There are currently over 50,000 different applications available for iPhone and iPod Touch users to download. Google, Palm, Blackberry and other companies have also created application marketplaces where developers can make computer applications available to the public. These applications are just like computer programs that are available for a pc but were created specifically for a mobile device.

Government and Mobile Devices

The state of Utah was the first government entity to create an iPhone application. They released two applications, "Utah.Gov" and "Utah Professional License Lookup" in April 2009. The Utah.Gov application provides a quick reference to locate state agencies, services and current news for the state of Utah. The application allows users to locate more than 1,000 online government services through a simple search interface or through topical browsing. The State of California is also planning on releasing a similar application in the near future.

The Utah.Gov Professional License Lookup is a search utility to verify the status of individuals with a state regulated occupation or profession. It displays the basic license information and color-codes the results based on active, inactive, suspended, or expired.

In early May of 2009, the state of Arkansas released the "Arkansas.gov Recovery Project Search" application. This application allows users to search projects funded by federal stimulus dollars by keyword or by city or county name. It also focuses on local initiatives funded by American Investment and Recovery Act resources and features a "near me" function that allows users to find these neighborhood and community projects by using the iPhone's GPS capability.

The state of Arkansas has also released an "Arkansas.gov" iPhone application. It provides users with the ability to search government services, agencies, and state employees. A GPS function permits users to find government offices and there is a newsfeed to access the latest state government news.

Pittsburg, PA became the first city to offer an application for registering citizen complaints through a smart phone. The "iBurgh" application provides basic citizen reporting functionality for complaints much like a 311 service. Boston will soon be releasing an iPhone application that allows residents to instantly send complaints -- about anything from potholes in the streets and graffiti on buildings and storefronts to malfunctioning street lights, directly to City Hall. Residents will be able to take pictures of specific problems, then use their iPhones' internal GPS to pinpoint exact locations and send the information on to City Hall. All of these mobile government applications leverage Internet connectivity to so that the data is constantly updated. Accordingly, a user of the Utah.Gov Professional License Lookup will get the same real-time information as a person who accesses the information from a home PC but in a format that is designed for a mobile device.

Choosing a Platform

The list of smartphone devices is relatively small but continues to grow. Popular models in the US are the Apple iPhone, Google Android G1, Palm Pre, and Blackberry Storm. Unfortunately, each of these devices uses a different operating system. As a result, mobile applications developed for one of these devices will not work on the other devices.

Worldwide Nokia and Research in Motion (RIM) are the two of the largest sellers of smartphone devicesⁱⁱⁱ. However, in the United States, the iPhone and the Blackberry Curve and Storm have the largest share of the market.

Due to this lack of interoperability, a government agency that is looking to offer a mobile application must decide which platform to choose.

Although the iPhone is not the leader in the number of devices on the market, it is far and away the leader in the number and availability of mobile applications. With over 50,000 applications available through the iTunes App Store, the iPhone has been the device of choice for application developers. The iTunes App Store has provided a marketplace where over one billion applications have been downloaded by users^{iv}.

Arguably, the iTunes App Store was a bigger innovation for Apple than the iPhone. The App Store provides a single open-developer marketplace for iPhone and iPod Touch applications. This greatly reduces the effort needed to make applications available to the public. However, with the massive number of applications available it is becoming increasingly difficult for applications to stand apart from the crowd. Initially developers counted on the fact that their application was in the App Store as all the advertising that would be needed. Now, a mere presence in the App Store is generally not enough to gain the public's attention. Government agencies are going to need to independently publicize applications through press releases and other marketing activities in order to raise awareness of the application.

Although the landscape is constantly changing, for the moment, the iPhone is likely to be the best platform for developing mobile applications that are readily available for public consumption. This is subject to change as other application marketplaces come online. Due to its strong presence in government, Blackberry would be the platform of choice for applications intended to be used by government employees on an enterprise basis. Enterprise applications are discussed further below. Another consideration is the coverage provided by each carrier. In some states, coverage by certain carriers may be very limited thus warranting the selection of a competing platform for application development.

Development Effort

All smartphone manufacturers provide developers with Software Development Kits ("SDKs"). These SDKs significantly reduce the time necessary to develop an application that will work on their devices.

Although the SDKs reduce the effort, developing mobile applications still requires specialized training and strong programming skills.

Applications for Citizens

There are a limitless number of mobile applications that could be developed by government to provide services to individuals, businesses, and other government entities. The most successful of these applications will likely leverage the unique capabilities of the smartphone devices and will be designed for users who are away from their home or office.

Navigation

Navigational aids have proven to be very popular with smartphone users and may offer new opportunities for government. For example helping users find local parks, fishing spots, museums, government offices, and tourism sites may be very popular with citizens.

Another opportunity that is just beginning to be explored is combining the GPS capability of the smartphones with the ability to pull audio and visual content. For example an application might be used to provide an interactive tour of a historical location. Much like the audio devices used in some museums, the application can provide information about events that occurred at a specific location. This lends itself well to large outdoor areas such as a downtown or a historic battlefield. At any given location the application can determine the location of the user and provide details about that general area.

GPS can also be leveraged in combination with the camera on these devices. This can prove to be very valuable for agencies that would benefit from information provided by the public. For example this would allow a Natural Resources agency to obtain very detailed information about the location and type of animals that are harvested during a hunting season. Similarly, an agricultural agency can track the spread of problematic pests.

Mobile 311

The ability for citizens to communicate directly with government is another exciting opportunity for mobile technology. Many jurisdictions have implemented “311” systems to help individuals find information and report issues. An application could be developed to allow individuals to report dangerous potholes (including a picture and location) or other types of hazards. The application could also provide the location and hours of government offices as well as information about government services.

Law enforcement

Law enforcement agencies might also benefit by being able to receive tips that include the location and photographs from the public. Conversely, law enforcement can distribute near real-time information about an emergency situation such as a child abduction or bank robbery.

Barcode Readers

The ability to display images also creates new opportunities. Delta Air Lines in early June 2009 began a program where customers in certain airports can use their smartphones to display their boarding pass. This makes the entire security and boarding process paperless. The barcode from the boarding pass is displayed on the screen and is read by the barcode scanners as though it was a paper boarding pass. This technology is in its infancy and thus subject to issues however, smartphones have the potential to eliminate many of the documents that are currently carried by individuals.

This type of process has the potential to also be used for hunting and fishing licenses.

Applications for Businesses

Businesses could also be served through mobile applications released by government. Examples might include real-time access to permit status on construction projects or the ability to search regulations.

Applications for Government

Although smartphone use by agencies has typically been limited to email and texting, smartphones have the potential to serve as an important tool for government employees.

These devices might be used by inspectors to immediately update records and issue permits, issue citations, or document site inspections.

The ability to retrieve and display documents is also a powerful feature that may prove valuable to employees in the field.

Conclusion

For a large portion of the population, smartphones are going to become a primary tool for accessing the Internet. Whether a person is hiking in the woods, walking down a city sidewalk, or waiting in a doctor's office, they will be accessing the Internet to find information and obtain services. Government can take advantage of this emerging service delivery channel to provide valuable solutions while also obtaining important information from the public. New applications which may not have been possible via a PC can be created through the use of mobile applications. Creativity is the only constraint for what can be possible.

With millions of people already using these devices, businesses are already discovering the benefits of reaching out to customers through mobile applications. Government can similarly benefit from the powerful capabilities of these devices.

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About NIC

NIC is the nation's leading provider of official government online services and secure payment processing solutions. The company's innovative eGovernment services help reduce costs and increase efficiencies for government agencies, citizens, and businesses across the country. NIC provides eGovernment solutions for more than 3,000 federal, state, and local agencies that serve 97 million people in the United States. Additional information is available at <http://www.nicusa.com>.

ⁱ comScore: "Mobile Internet Becoming A Daily Activity For Many" March 16, 2009

ⁱⁱ Yankee Group, June 10, 2009

ⁱⁱⁱ Gartner, May 2009

^{iv} Apple, April 2009