WEB**MAP**SOLUTIONS
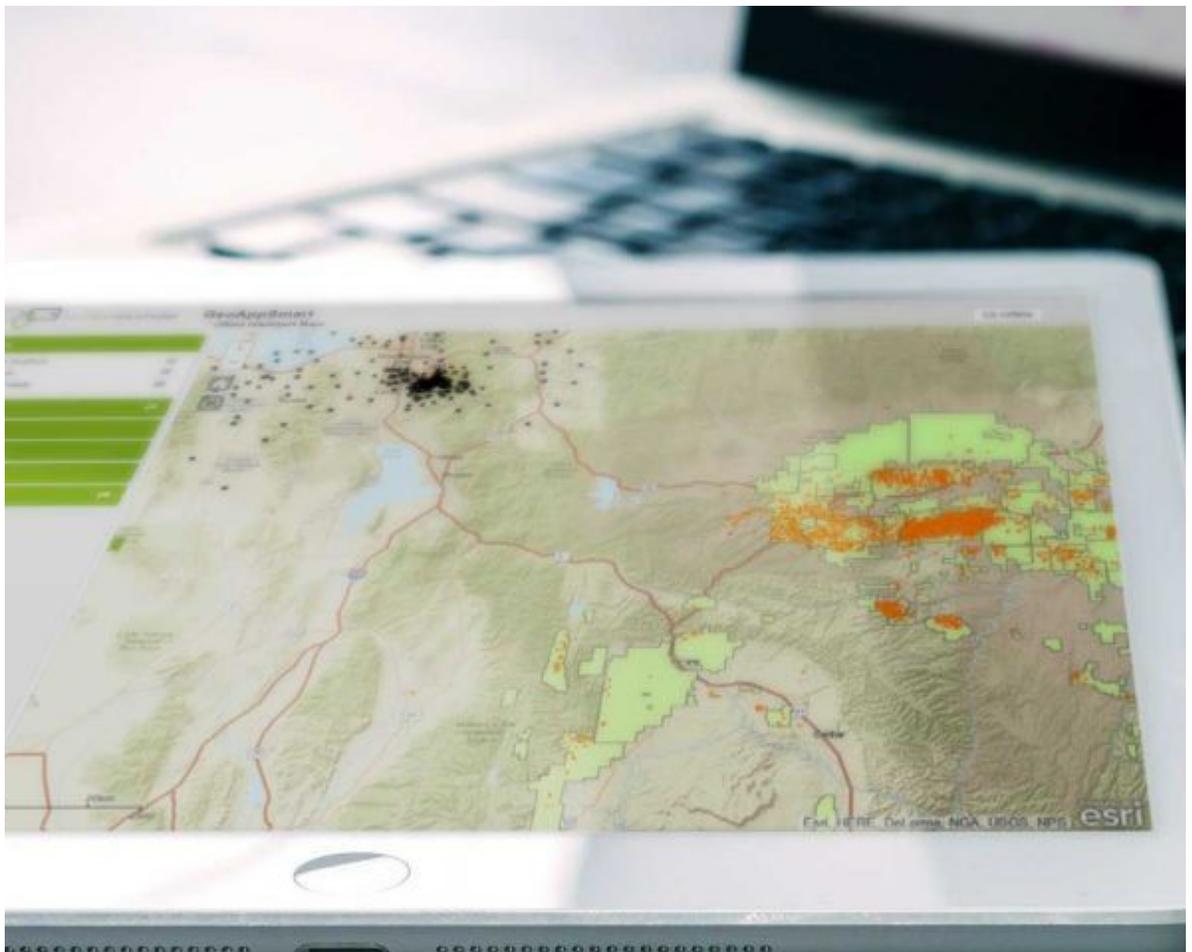
Your Guide to Mobile GIS

Getting Started | Moving Forward

1. Introduction

We live in amazing times. Mobile and cloud computing are changing how and where we are able to use technology. No longer are we limited to our home or office. Today technology is accessible and usable wherever and whenever. And by technology we mean computers: smartphones, tablets and the new phablets. We are talking about mobile computers.

Mobility means changing location. This has made location and location based data and analysis suddenly terribly important. Geographic Information Systems or GIS, is location focused technology. It provides the means to collect, store, visualize and analyse any and all location data.

We at the very beginnings of a revolution in location technology and GIS.

In this eBook we will discuss mobile GIS. What are your options, how to choose the most appropriate option to solve your problem and how to get started.

Let's begin with you mobile GIS options.

2. Mobile GIS Options

There are two types of mobile GIS apps:

1) Mobile GIS Web Apps – These are web applications which have been built in a way that they can be used on any device. They are browser based and can thus run on Apple, Android or Windows device. They are often described as 'all device' mobile apps.

2) Native Mobile GIS Apps – These are the type of mobile apps you download from the various app stores (iTunes, Google Play etc). They are built specifically for one platform, and often for a specific device.

Native apps are installed on your mobile device, whereas web apps are accessed via your mobile's browser, like Chrome.

To a user these two app types can often appear similar. But they are built quite differently. Native apps are developed in the language of the platform on which they are designed to run. So Java in the case of Android. In contrast mobile GIS web apps are built using web technology: HTML5, Javascript and CSS.

As we will discuss in the next chapters both of these mobile types have strengths and weaknesses.

Next a deeper dive into GIS Web apps

3. Mobile Web Apps

Simplicity and **flexibility** are the two words often used to describe mobile GIS web apps. Built using web technology. Huge advances have been made over the last few years in web technology. A new breed of mobile GIS web apps are emerging. Many now suggest the future of mobile is 'all device' web apps. Some key things to know about mobile GIS web apps include:

1. Run on **any device** – PC, laptop, smartphone, tablet
2. Provide a simple way to view your mapped data
3. Come with many **advanced tools**
4. Simple to **extend and modify**
5. Can be used anywhere whether connected to the Internet or **disconnected**
6. **Easy to set up**, configure and use

If a web app is built using a 'responsive' methodology it can be used on any device. Widgets, or plug-in tools, are becoming increasingly more popular. These allow users to configure a single application to provide different functionality for different groups in an organization. Maybe offline data collection for one group, and location analytics for another.

Big data and access to some device sensors and other built in mobile tools can be problematic for mobile web GIS apps. But with the release of technologies like Phonegap, a web app can be converted to a native-like app, which overcomes some of these limitations.

Next let's discuss native GIS apps

4. Mobile Native Apps

Performance and **sensors** are two key terms associated with native mobile apps. When the first smartphones and tablets were released native apps were the most popular and common way to access a GIS on a mobile device. Mobile native apps are built with one platform, often one device, in mind. So an iPhone, Galaxy tablet, iPad etc. They are installed on your mobile device. Some key things to know about mobile GIS native apps include:

1. Run on specific, targeted mobile devices
2. **Distributed** through the mobile app stores
3. Are particularly well suited for **viewing 'big data'** maps
4. Can access all mobile sensors including compass, bluetooth
5. Come with **advanced tools** such as offline routing
6. Can be used anywhere whether connected to the Internet or **disconnected**
7. Can be complex to develop, and less easy to modify and extend

Native apps are styled in the manner common to the platform for which it is built. So an Apple focused GIS app has the Apple look and feel. Native apps work best to solve very specific more advanced problems, where deep level device access and/or high performance with large data-sets is a requirement.

Next up some case studies

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5. Case Studies

Let's discuss 3 different mobile GIS case studies:

1. Mobile Web GIS – A **US state agency** contacted us about building a flexible, cost effective mobile GIS app. They needed an app which could be used by many different departments and could be configured with different tools. They wanted the app to run on any device, and be easy to modify and extend as new requirements came forward from different departments over time. Given the need for a high level of flexibility, it was decided to build a widget based mobile GIS web app.

2. Mobile Native GIS – A large utility in the **Southern US utility** approached WebMapSolutions looking for a complex mobile asset management solution. Offline was a key component, as was integration with their existing business EAM system. Access to device sensors was important as was the platform: Windows in the case. Given the complexity and single device focus, it was decided to build a .Net native ArcGIS app.

3. Hybrid Solution - SGL are based in the Eastern US. They are a **real estate company** who provide land sales of rural, timberland, recreational, and transitional land. They approached WebMapSolutions looking to improve how their agents worked, and how to discover new opportunities. They had data collection, and very specific location intelligence needs. Our approach was to leverage ArcGIS and to configure two existing mobile apps - Collector for ArcGIS (native) and Geoforms (web). We also developed a very flexible responsive ArcGIS web app with custom tools, built for their specific location intelligence needs.

Next … what is your best mobile choice?

6. The Best Option?

Now you have a better understanding of the mobile GIS apps landscape what are your best options? There are 4 basic choices:

1. Configurable mobile web apps – Many GIS solutions such as ArcGIS Online come with a range of so called configurable solutions. These are web apps which are pre-built to provide either a way to view your map with included, basic tools, or very focused functionality. At WebMapSolutions we have taken this to a new level by releasing GeoAppSmart for ArcGIS which is super flexible with plug-in tools and offline capabilities.

2. Configurable mobile native apps – Collector for ArcGIS is a good example here. It is not configurable, meaning you get what you get and cannot customize, but is a nice focused data collection app. If you have generic, task focused needs these can be a good option.

3. Custom mobile web apps – If flexibility, cost and extensibility are key this is by far your best option.

4. Custom mobile native apps – If you are dealing with 'big-data' and need high performance. Or if you have advanced platform specific mobile GIS needs. Native is the way to go.

So what next?

7. Next Steps

That's it. But before we bid you adieu, some parting advice. Success with mobile GIS is in part about making the right choices when it comes to the technology. But far more important is preparing the ground work for your mobile implementation. That means careful planning, evolving the story (what might the final solution look like) and data preparation.

Join us for a <u>FREE</u> Mobile Discovery Workshop

Led by one of our solutions experts. The workshop is conducted remotely, and takes an hour to complete. The goal is to explore how you can move forward, and successfully overcome your challenges, with mobile GIS.

No commitment. No obligation. Join us.

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