Stephen E. Arnold, July 21, 2008

GOOGLE MAPS: A MAGNET FOR ENTERPRISE GEOSPATIAL MASH UPS

Think of the role maps have played in history. The West Indies trade routes. A map of the New World. Blackbeard's treasure map. Wagon train routes across Native American plains. A schematic of tourist attractions through Rome. A drawing of the links at Augusta Golf Course. Public transportation directories of New York City. Even a layout of Walt Disney World. Just as you need a map to navigate your way cross-country or through a foreign city, maps can help you navigate modern digital knowledge spaces. In a world with a surfeit of information, organizations cannot move without representations to give them an idea of what direction to go.

Cartographic specialists have documented a map – specifically, the town plan of Catal Hyük --dated an amazing 6200 B.C. Compared to a current satellite image map of a city with overlays of the locations of customers, the Catal Hyük map is an unprepossessing mass of lines (here's a modern rendering of the map fragment: http://www.henry-davis.com/MAPS/AncientWebPages/100B.html). Drawn from the stars and the astrolabe, or the compass and modern GPS, maps have become increasingly specific and useful.

So maps have gone from stone to paper, and now from paper to pixels. The Internet has revolutionized the concept of a map – they're cheap (if not free) and easy to find online, and they are customizable.

So not surprisingly, online maps and mapping services are among the most popular applications online. You can find a wide range of features and functions from Google, Microsoft, and Yahoo. For an enterprise, no-charge Web maps are useful for locating a customer's new office, but they have to do more than find a restaurant or provide Point A to Point B driving directions.

It's those dynamic interfaces for customization and labeling that have made mapping services increasingly critical to both individuals and organizations – maps are now not just directions to and from. They're data containers: directions, restaurants, hotels, rest stops, tourist attractions, movie theaters, and the list goes on and on.

Google introduced maps as Google Local. But it was the 2004 purchase of Keyhole, a company with geospatial data visualization applications, that signaled the company's enterprise ambitions.

An enterprise can tap into a wide array of mapping functions. You can see some of the capabilities of Google's enterprise geospatial services by navigating to http://maps.forum.nu/. Google offers a range of Map API examples. You can look through these by directing your browser to http://code.google.com/apis/maps/documentation/examples/.

You can explore a range of functions such as controls, markers and polylines, overlays, and services. Google's examples are visual delights. Expect to spend a few minutes examining the possibilities. These more intuitive constructions make the maps simple and

more pleasing to the eye, not to mention chock full of information. Mapmaking is no longer restricted to cartographers; you or I, any adult, or even a fifth-grader can sit down and make a map using these applications. So surely any business would be crazy not to take advantage of this highly personalizable service.

Google's enterprise service is called Google Maps API Premier. Compared to mapping services available from ESRI or NavTeq, the Google solution starts at $10,000 per year. Google's licensing is based on the number of map page views for externally facing web sites. For internal use, it is based on the number of end users who utilize the application.

Maps API Premier is a cloud-based service. A licensee taps into Google's infrastructure to upload data and manipulate the information.

Google provides a service level agreement of 99.9 percent uptime and security services to protect a licensee's information. Organizations can embed a free Google Map API on their web sites (navigate to http://code.google.com/apis/maps/index.html for more information). The differences between the free and for fee APIs boil down to increased functionality and direct Google customer support.

For example, the U.S. government has found Google's geospatial services useful in executive branch agencies as well as in specialized branches such as the Department of Homeland Security and various intelligence groups. Typical functions include the ability to overlay custom data with the JavaScript-based API, ability to integrate maps into other applications, and access to satellite images for detailed views of the Earth.

Enterprise applications, according to Google, include work force management so a manager can see where professionals are located. CRM applications include overlaying customer data on geographic areas. Companies wanting to track shipments in real time can plot truck locations on a Google map. And marketing data can be given a geographic perspective so analysts can better understand business metrics.

Google provides mobile device support. Enterprise applications can combine custom functions with GPS location, driving and transit directions, phone numbers, and address look up. Google tucks this information away at http://www.google.com/mobile/default/maps/index.html.

Google has a number of services to modify Google Maps. You have to pay about $500 for Google's SketchUp Pro 6, software used to create, export, and present 3-D models that can easily be placed as buildings in Google Earth (http://www.google.com/intl/en/sketchup/3dwh/pdfs/modeling_a_city.pdf). Google also offers a library of structures you can explore at http://sketchup.google.com/product/gsup.html.

The pay version of SketchUp provides technical support as well as extra functionality for people who need to export their work into CAD, rendering, and other professional software applications. It also includes LayOut

(http://sketchup.google.com/product/layout.html), a new program that lets you create complete presentations – paper and digital – from your SketchUp models. There is plenty more information available plugins (http://sketchup.google.com/download/plugins.html) to extend the functionality of SketchUp Pro, as well as applications that are SketchUp-compatible (http://sketchup.google.com/download/skpcompapps.html).

There are fairly obvious applications, but Google has other map tricks up its sleeve as well. The new collaboration function in Google Maps is almost unnoticed by enterprise trade journals. An authorized user can invite others to be collaborators, similar to Google's more well-known Google Docs application. The invitation supports a test message, permissions can be set to allow others in the organization to edit the map, and the function hooks into email. Collaboration works with Google's personalization function. Basically, we're not using maps to find out where we are anymore. We're telling the applications where we are, and the map forms around us to our specifications.

And for many enterprise information technology managers, other innovations are even more difficult to find. Consider My Maps at http://maps.google.com/help/maps/userguide/index.html.

You can create personalized, annotated, customized maps using My Maps. Your maps can contain placemarks, lines, and shapes. Once a map has been created either by a user or a script, you can add descriptive text, including rich text and HTML, embed photos and videos, share maps, import Google's mark up or set up a geographic news feed to update the map, and open the map in Google Earth to create a TV news-style look at an area with data placed on the imagery.

To view a map in Google Earth, you have to install the fat client. A free version is available at http://earth.google.com/. An enterprise version, called Google Earth Pro, is available for $400 per user. Google provides a comparison of the free and for fee versions of Google Earth.

The most recent version of this application makes it possible to view photo realistic buildings from cities around the world, view dawn to dusk views with the "sunlight" feature, and swoop navigation from outer space to street level. Like other map functions, Google Earth provides an application programming interface and plug ins. Additional information is available at http://code.google.com/apis/earth/ and you can view a video showing some of the features of this function.

Google is not content to display static maps. The map "ecosystem" supports real time data. Google announced in June 2008 that the company will license Tele Atlas's mapping technology for another five years. This deal makes it possible for Tele Atlas to gather information from Google users about inaccuracies in maps and make updates to reflect changes. Current maps reduce some of the unnecessary costs incurred by delays caused by bridge outages not reflected in some maps. Accurate maps, therefore, reduce costs for organizations.

As interesting as Google's current geospatial functions for the enterprise are, Google is not standing still. In two U.S. patent documents – US20070282792 and US20080059205 – Google discloses systems and methods to reduce the time required to deploy customized applications of geospatial data. For an enterprise, mapping solutions that take less time to deploy, maintain, and tune translate to better decisions and lower costs.

Yet another innovation from Google, disclosed in US20070143345, performs entity display prioritization. Enterprise managers can display important competitive actions reported in an RSS news feed on a map, and the map shows where a competitor is directing its efforts. Information of this type makes it possible for a sales manager to gain competitive intelligence about a competitor. For example, a real estate professional or a site selection consultant can combine Google services to show in real time what's available and when other companies are looking at a particular property.

In summary: Google has a map and imagery service and an increasingly robust array of enterprise mapping services available to anyone with a browser. Many of these are not well publicized and are, therefore, unknown by enterprise knowledge managers, business analysts, and procurement officials.

Google is focusing resources on making sophisticated geospatial modeling services a matter of pointing and clicking. The approach speeds up what has traditionally been a complex, time consuming process. What's clear is that Google wants to bring real time information flows directly into its applications.