Web Services, Mashups & KML

Part II: Mashup Methodology, KML, Geosocial Networking

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Re-cap

- Web services as pipe feeds …
- Open web services and web service standards
- Plethora of web service clients
- KML as exchange and web service output
- Mashup concepts & examples
- Message/Audience, Data access & resources
What it all means …

• Lower skills threshold and lower cost of ownership
• Faster development and rollout often soliciting iterative feedback
• Useful mid-project as well as for communication of results
• Focus on user and value-added content
• Networked for connectivity to other tools
Case Study example
– ControlFinder Overview –

• Audience – Wisconsin+ surveying community
• Data access – NGS, SCO/USGS, Counties
• Tools – Mapserver, PostGIS, PHP, Javascript
• Resources – Grants + office/student talent
• Mashup potential – Favorable
• Potential benefits – Reduced maintenance, focus on content, future enhancements
• Next step – Functional application analysis
What is Web 2.0

Author: Luca Cremonini Source: http://www.railsonwave.it/railsonwave/2007/1/2/web-2-0-map
URL: http://www.railsonwave.com/assets/2006/12/25/Web_2.0_Map.svg
Goals of ControlFinder Mashup

- Usability
- Remixability
- Standardization
- Convergence
- Flexible output
- Participation/feedback from users
Use Case Scenario
Know your audience

Use Case Scenario & KML Opportunity
Sometimes, knowing your audience is not by accident.
Data Access

NGS – Bulk download, granular query… aiming for web services and change alert.

The rest (via SCO)= Web Map Service (WMS)
Data Delivery - Clients
Potential Tools & choices

• PostGIS & flat files: data storage
• Mapserver -> GeoServer: web service authoring
• OpenLayers/MapFish: mapping framework
• GoogleMaps API ?: basemap
• Upgraded scripts: specific functions
  – E.g. Saved results
• New scripts: enhanced feedback reporting
KML Exchange

• KML is a transport format
• Can be discreetly published or…
• Can be output by a web service
KML Tools

• MapExcel2KML ....
• KML2SHP, SHP2KML
• Gdal2tiles, GeoServer,
• ESRI-related:
  – Export to KML 2.4.4
  – Arc2Earth
• KML Clients (Google Earth, ArcGIS Explorer, NASA Worldwind)
KML Tool Compilations

http://www.zonums.com/

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KML Generators

KML Interactive Sampler
Explore the samples below or enter your own KML to get started. You can then make changes and see them in action by clicking 'Update Earth!'
This sampler requires the Google Earth Browser Plugin.

More samples available at the kml-samples project.

Image © 2009 DigitalGlobe, Inc. © 2009 Earth Technologies
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KML Generators

Marker KML Creator

KML Name   KML Description

<?xml version="1.0" encoding="UTF-8"?>
<kml xmlns="http://earth.google.com/kml/2.1">
<Document>
  <name>KML Name</name>
  <description>KML Description</description>
  <Placemark>
    <name>UN Campus</name>
    <description></description>
    <Point>
      <coordinates>-89.3978, 43.0674</coordinates>
    </Point>
  </Placemark>
</Document>
</kml>
KML Clients

• Google Earth
• ESRI ArcGIS Explorer
• Microsoft Virtual Earth
• NASA WorldWind
• ERDAS Titan Client
• KML-consuming websites
Learning More

Lessons Learned from Neo geography Applied to GIS

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I believe the presentation was well received, and definitely touched upon many points raised in other presentations both in recognizing the positive aspects of innovative GIS applications as well as common problems that are faced exposing complex data and capabilities to citizens. I’m definitely interested in any additional feedback or thoughts. I’ll be speaking and discussing in several panels at the American Association of Geographers meeting in Las Vegas next month - a group with similar criticisms and potential points of collaboration.
Neogeography

- The term neogeography was first defined in its contemporary sense by Randall Szott on 7 April 2006, and elaborated on May 27 2006. He argued for a broad scope, to include artists, psychogeography, and more. The technically-oriented aspects of the field, far more tightly defined than in Szott's definition, were outlined by Andrew Turner in his *Introduction to Neogeography* (O'Reilly, 2006). The contemporary use of the term, and the field in general, owes much of its inspiration to the locative media movement that sought to expand the use of location-based technologies to encompass personal expression and society. [3]

- Traditional GIS Geographic Information Systems historically have developed tools and techniques targeted towards formal applications that require precision and accuracy. By contrast, neogeography tends to apply to the areas of approachable, colloquial applications. The two realms can have overlap as the same problems are presented to different sets of users: experts and non-experts.[citations needed]
Geosocial Networking

- Geosocial networking is social networking in which geographic services and capabilities such as geocoding and geotagging are used to enable additional social dynamics. User-submitted location data or geolocation techniques can allow social networks to connect and coordinate users with local people or events that match their interests. Geolocation on web-based social network services can be IP-based or use hotspot trilateration. For mobile social networks, texted location information (such as with dodgeball.com) or mobile phone tracking can enable location-based services to enrich social networking.

- Geosocial networking can allow users to interact relative to location and time. Web mapping services with geocoding data for places such as streets, buildings, and parks (such as Live Search Maps or Google Maps) can be used with geotagged information (such as meetups, concert events, or nightclub or restaurant reviews) to match a user with a place or event or local group in which to socialize, or enable a group of users to decide on a meeting activity. In disaster scenarios, geosocial networking can allow users to coordinate around collaboratively filtered geotag information on hazards and disaster aid activities to develop a collective situational awareness through an assembly of individual perspectives. This type of geosocial networking is known as collaborative mapping.
Geosocial Networking

- As some of the first online communities to adopt geotagging features, the Google Maps community and photo sharing communities such as Flickr and Panoramio are arguably considered early geosocial networks. Video sharing website YouTube updated its service to facilitate geotagging in July 2007.

- By 2008, expanded geolocation technologies including cell tower localization became available on services such as Google Maps for Mobile (with the My Location feature), and devices such as digital cameras and camera phones began to integrate features such as Wi-Fi connectivity and GPS navigation into more sophisticated capabilities such as auto-geotagging. The inclusion of geolocation features in the popular iPhone such as My Location in January 2008 (iPhone OS 1.1.3, supplementing the cell tower localization with Wi-Fi Positioning System technology from Skyhook Wireless), and Assisted GPS in July 2008 (iPhone 3G) saw a proliferation of location-based applications on the App Store (>300 by September, 2008), including many centered around mobile social networking such as WhosHere, nrme and Zintin.

- Geosocial services include discovery-centric services such as Whrrl, Loopt, and Google Latitude, and review sites such as Yelp and Qype.

- Some of these services share geographic content through KML, or may be ingested by other geographic display and query software, though feature and attribute editing is typically restricted to the hosted environments.

- Because online geosocial networking sites target locally familiar content, participation tends inherently to encourage face to face interaction of users in or around local places.
From "Planet Google" by Randall Stross

pg 135
On Keyhole's acquisition:
Keyhole did not see why Google was interested, and its first question was, what do satellite images have to do with Web search? The answer was: think big. Think of geography as more than roads maps and driving directions, like MapQuest. Think of geography as a window upon all information. Think of the earth itself as an organizing device for all categories of information, and satellite images as the way to pull users into a geographic framework. Think of how a user interested in, say, the history of Iraq could virtually fly down into Baghdad, where street-level images would lead to historical documents. The way the Googlers saw the possibilities, satellite images could have everything to do with Web search and any other kind of information search as well.

pg 150.
Before long, we are likely to look back upon Street View or the first-generation mash-up as crude experiments. We will come to rely upon mashups that combine not two but many disparate sources of information--restaurants, menus, professional reviews, customer reviews, health department inspection reports, the presence of friends in the vicinity, one-click reservations--overlaid onto a single map, updated continuously. And we will become accustomed to having access to all of this information, seamlessly integrated together, anywhere we happen to be, on any Internet-connected device, on any screen, tiny as well as large.
A Question… of group bookmarking?
What’s Next

• Your presentations

• Tools

• APIs

• Frameworks
Mashup Tools

- Google Maps, StreetView, GE APIs
- Yahoo! Pipes, Yahoo! GeoPlanet
- Google & Yahoo! Geocoding services
- .NET/Microsoft Virtual Earth, GeoLife
- Custom coding
- Mashup code “framework” (e.g. OpenLayers, MapFish)
- Online mashup frameworks (ExploreOurPla.net, GeoCommons Maker/Finder)
Mashup Frameworks

- OpenLayers/ MapFish (Javascript)
- Modest Maps (Flash)
- SpatialKey (Flex)
- SpatialWiki (.NET/Virtual Earth)
- GeoCommons – Finder! & Maker! (Online)
- MapChannels website (API Comparison)

... and the list is growing.

Virtual globe and open source GIS clients are a good staging/prototype environment for mashup development.
Thank You!
Questions or Comments?

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