A Taxonomy of Web Mapping Applications

- Web Mapping at the Massachusetts Historical Commission
Joshua Rosenthal, GIS Supervisor, Massachusetts Historical Commission

- Integrating ArcGIS Server with Google Maps:
MIT's Online Campus Map
William P. Witts Jr., GIS Specialist, MIT Department of Facilities

- Serving Authoritative Content with Rich Internet Applications
Mark Scott, Technical Sales Representative, ESRI Boston

- Performance comparison of popular free/open-source
web-mapping platforms
Saul Farber, Director of Technology, PeopleGIS

Web Mapping Technology Primer

- **Common Web Mapping Components**
  - Map / GIS Server
  - Map Services
  - Communication Protocols
  - Web APIs for building apps
  - Mashups

Map / GIS Server

- A server that accepts requests from web clients & returns geographic content
- Content returned as images (jpeg, etc) &/or vector features
- Some commonly used servers:
  - ArcGIS Server
  - GeoServer
  - UMN Mapserver
  - ArcIMS
  - Geomedia WebMap

Services

- Map / GIS Servers provide various services
  - Map Services
  - Geocoding Services
  - Geoprocessing Services
  - 3D Services

Map Service Types

- Some servers support multiple service types.
- Examples:
  - Web Map Service (WMS): maps returned as images
  - Web Feature Service (WFS): vector / tabular data access
  - ESRI Mapping Service (native to ArcGIS Server)

Communication Protocols

- How the client communicates with the server
  (ie., "hey, draw me some layers at this scale, at this location...").

- Examples:

  - Representational State Transfer (REST)
    - Client sends commands in a URL; server returns a map image &/or JavaScript Object Notation (JSON) code
    - Very lightweight & popular for web 2.0 apps

  - Simple Object Access Protocol (SOAP)
    - client/server communication via XML code
    - useful when client & server need to closely track states

Web APIs for building apps

- Web Application Programming Interfaces (APIs) provide a framework for building web apps that communicate with one or more map services

- Most are specific both to a programming language & to a service type

- Example APIs:
  - Java
  - JavaScript / HTML
  - Flash / Flex
  - Silverlight

Mashups

- Mashups combine two or more external map service sources to create a new service
- Options for creating these are increasing every day as new services become available
- Example services that support mashups:
  – ArcGIS Online
  – Google Maps
  – Bing Maps
  – MassGIS Web Map Services
    (or other publicly hosted services)

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