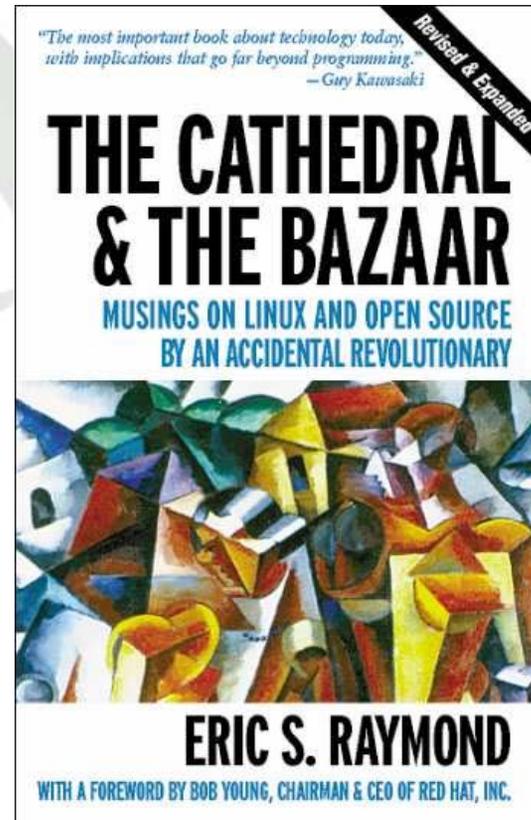


How APIs, Standards, and Customers Drive Software Genres into Open Source

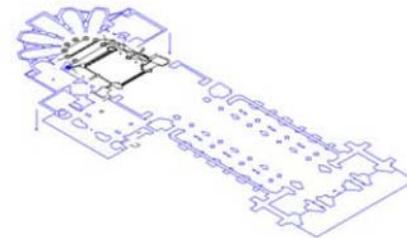
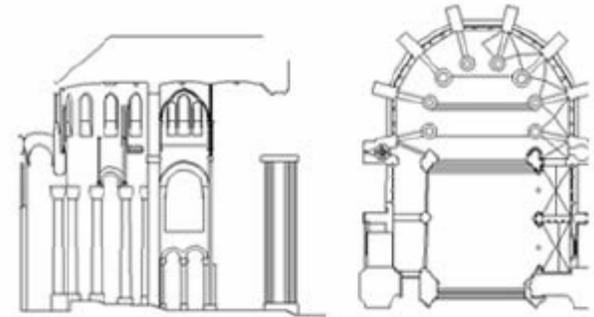
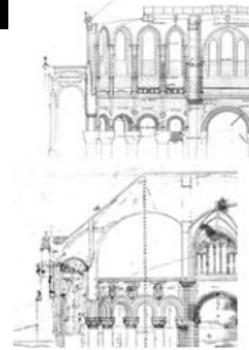
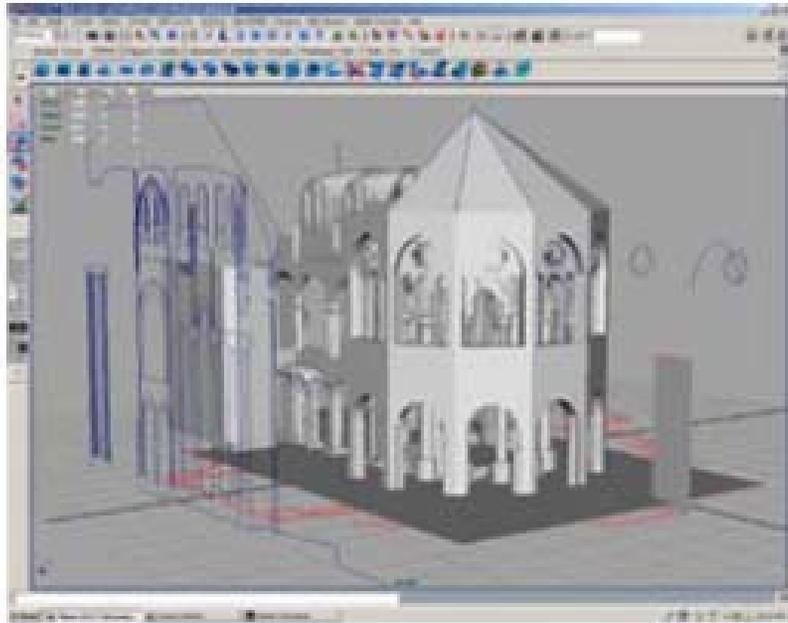
Gary Lang
VP Engineering ISD, Autodesk



Two Models: Cathedral and Bazaar



Autodesk is a Cathedral?

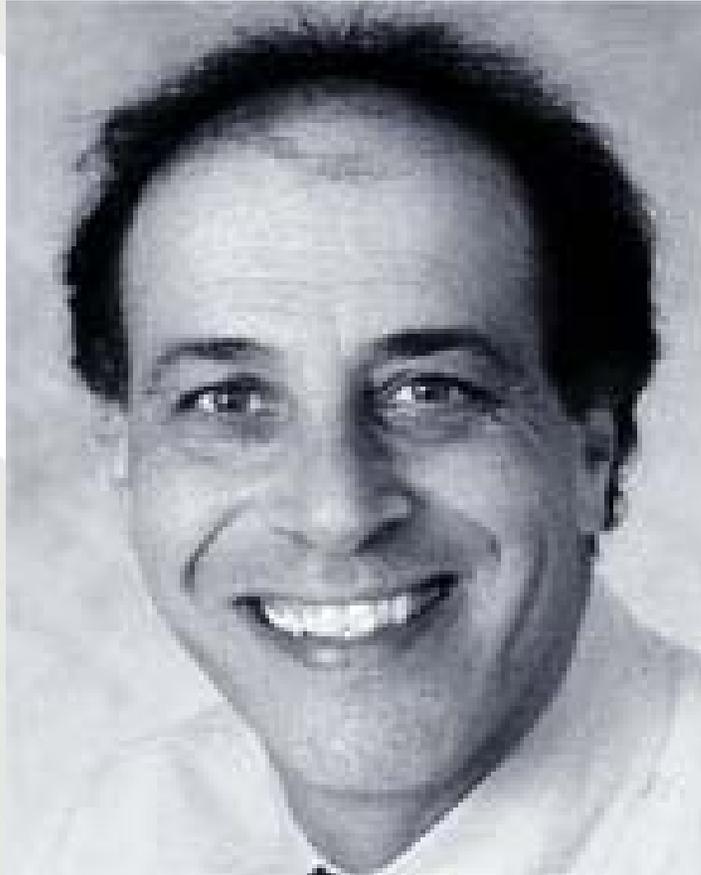


“Cathedral”

Webster says:

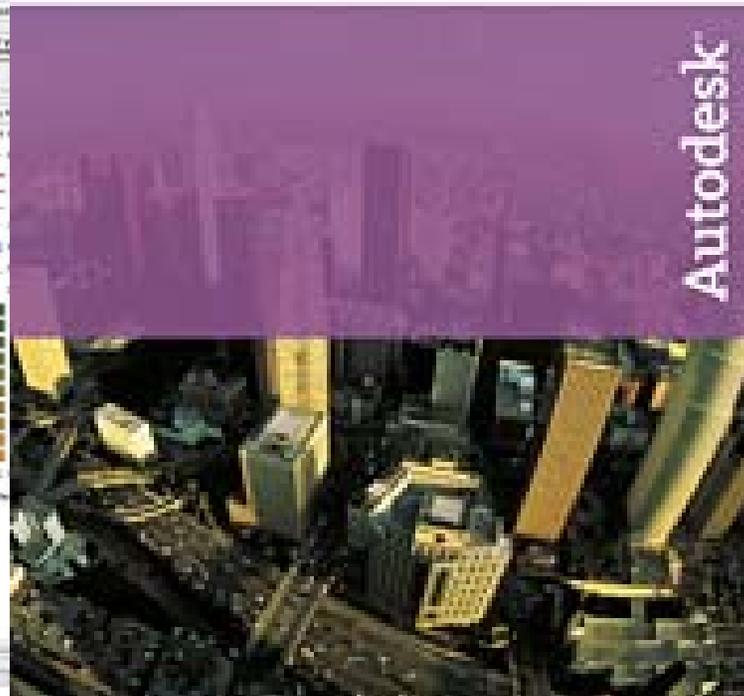
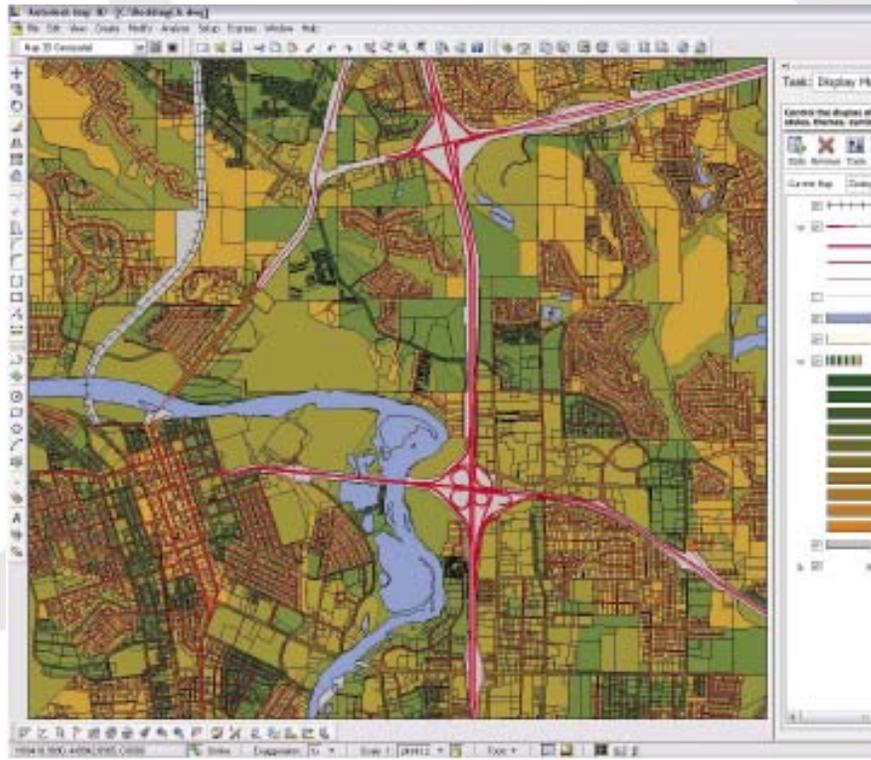
“The principal church in a diocese, so called because in it the bishop has his official chair (Cathedra) or throne. ”

Our Bishop?



Successful closed source – The Cathedral

AUTODESK
MAPGUIDE®
6.5



Successful open source – The Bazaar



The Geospatial Bazaar



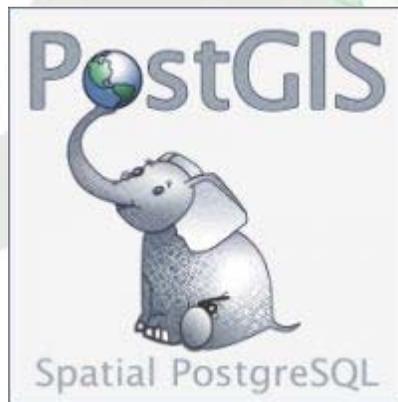
OPEN SOURCE
A GRASS GIS
Approach
Second Edition

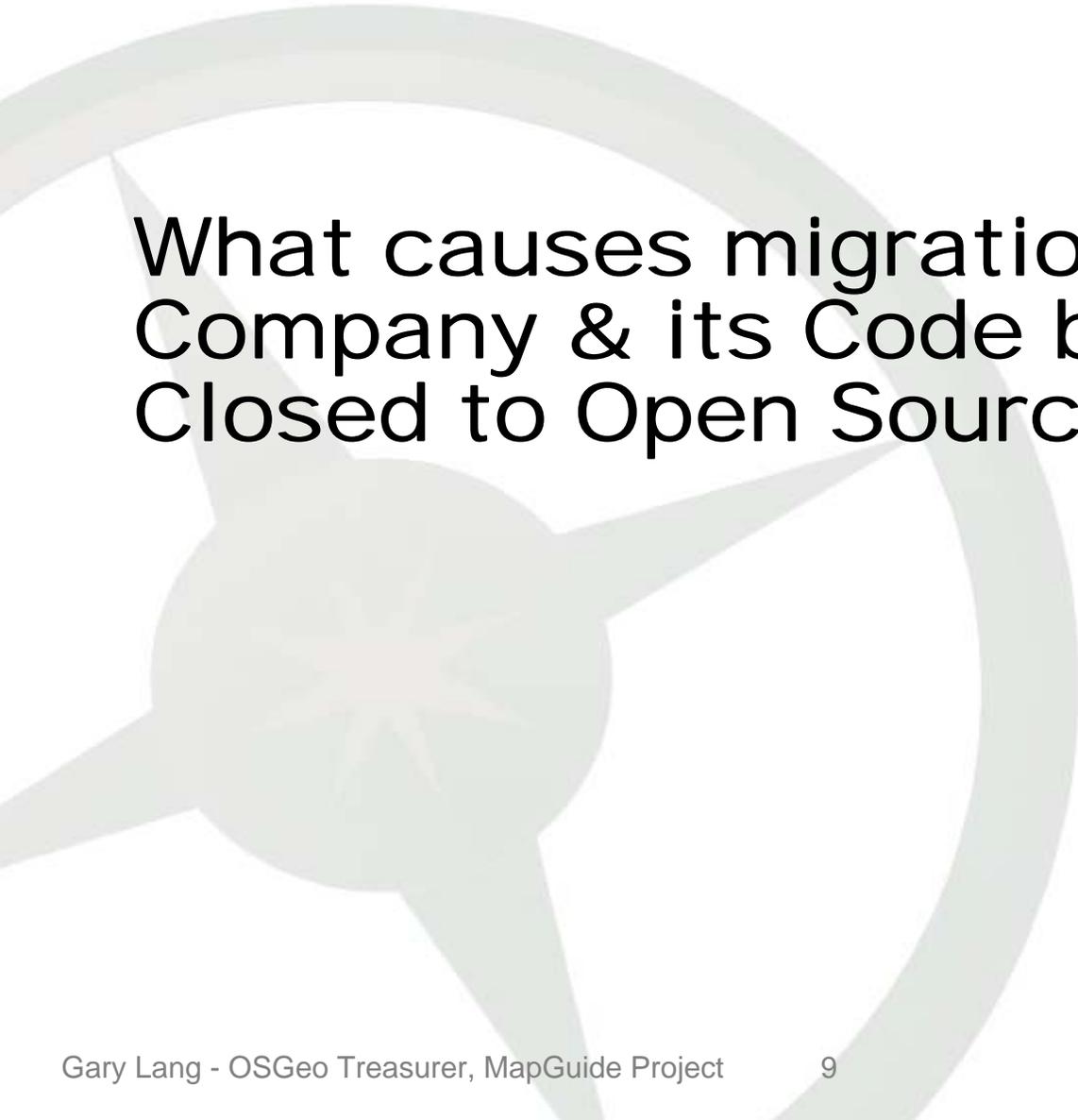


Mapbender



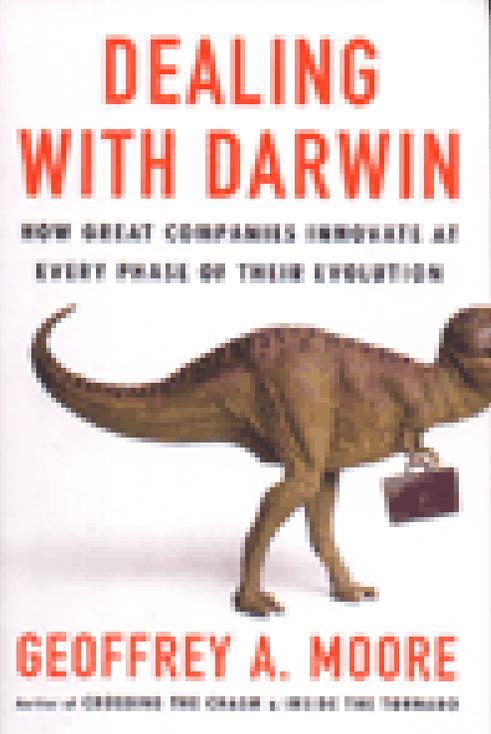
Markus Neteler
and
Helena Mitasova





What causes migration of a Company & its Code base from Closed to Open Source?

Core



Context

Standards Facilitate, drive migration

- POSIX, Unix culture -> Linux
- HTTP -> Apache
- SQL, ODBC, OGIS -> PostGIS
- GML, WMS, WFS -> MapServer

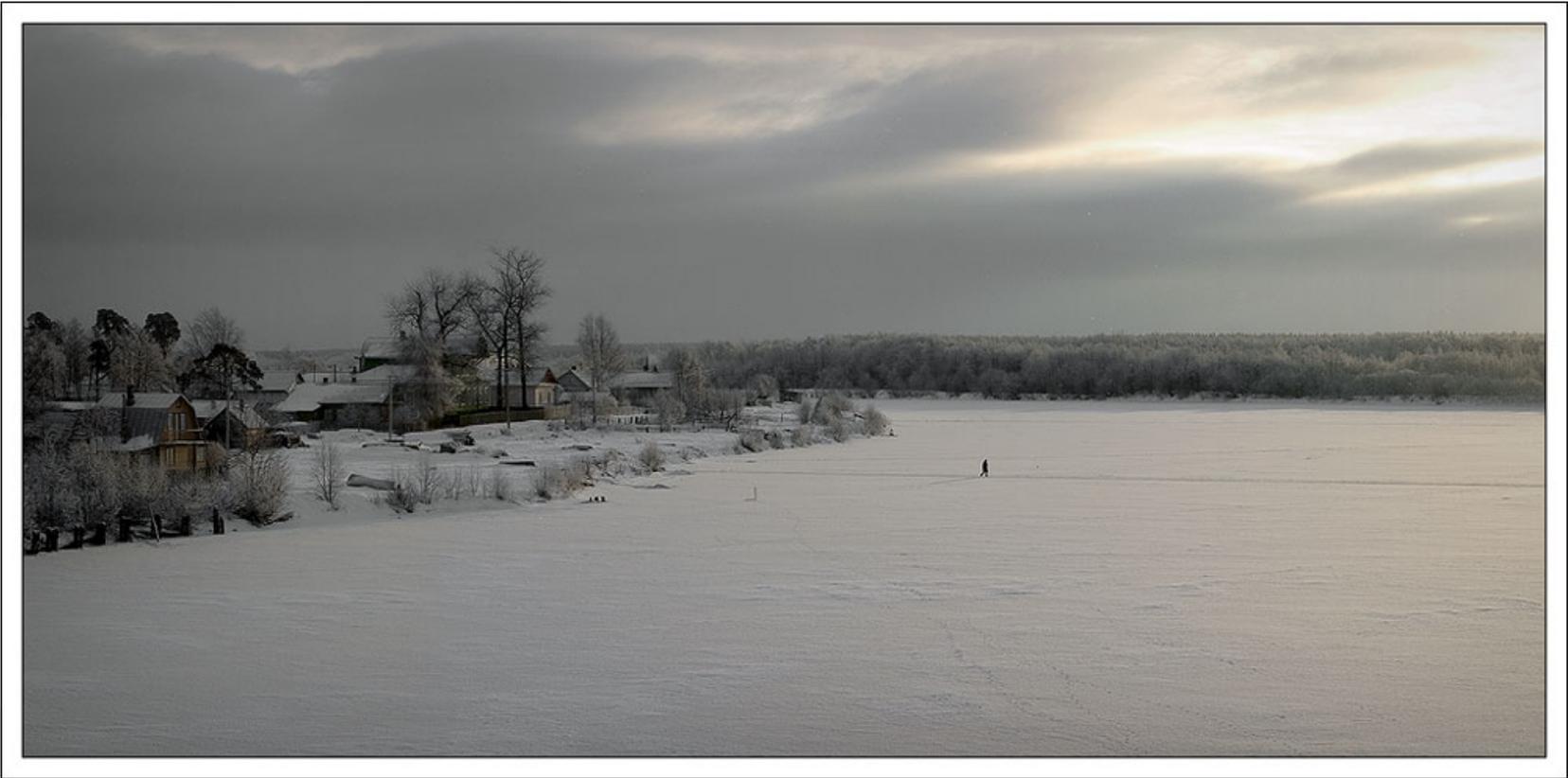
What About Geospatial standards?

- Geospatial was a latecomer to IT and many of the standards associated with modern IT
 - GIS used to be highly proprietary.
 - In 2005/2006 geospatial joined the mainstream.
 - Thanks to Google for generating the interest
- Geospatial is adopting standards by extending IT standards
 - SQL -> SQL/MM
 - XML -> GML
 - Web services: -> WMS, WFS, WCS, etc.
- Exceptions
 - GRASS has been here for a long time

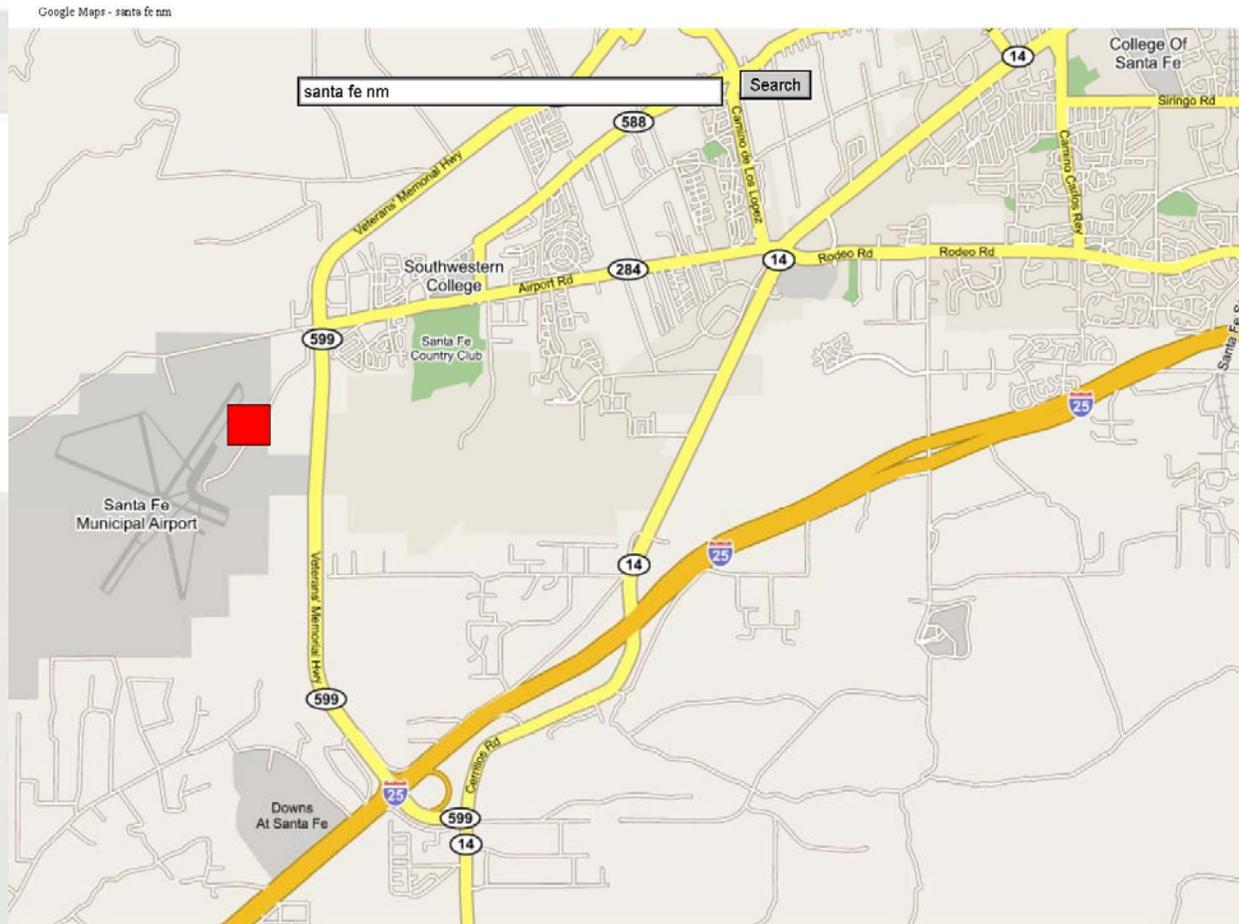
Open Source Geospatial Software

- A “quiet secret”, rapidly matured.
- MapServer is the number 2 web mapping application estimate 30K – 50K.
- Other examples: PostGIS, GeoTools, GRASS, etc.

Geospatial Open Source Interest – B.G.

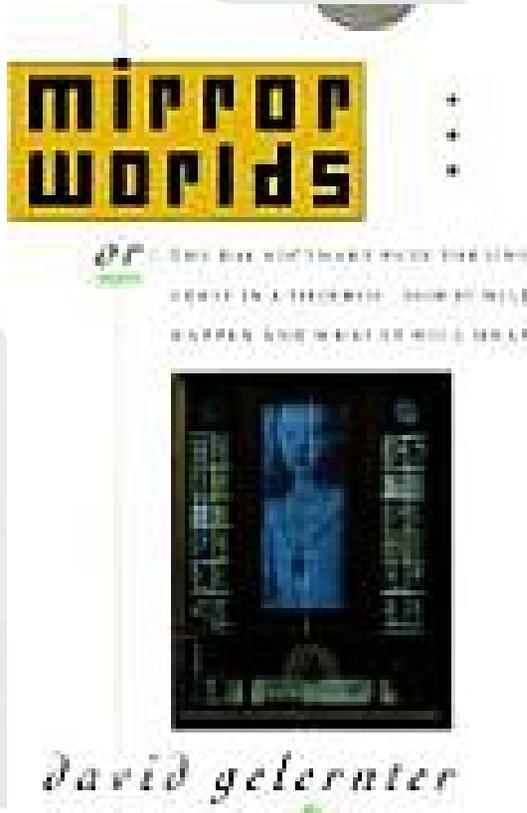


Then came Google Maps



<http://maps.google.com/maps?q=santa%20fe%20nm&ll=35.630371%2C-106.050499&spn=0.056763%2C0.1134292%23/200511:53:17AM>

AND Google Earth Brings “Mirror Worlds” to the Masses



Mirror Worlds

“Imagine looking at your computer screen and seeing reality – an image of your city, for instance, complete with moving traffic patterns, or a picture that sketches the state of an entire corporation at this second.... These will soon be available to anyone.

David Gelernter 1991 “Mirror Worlds”

<http://tinyurl.com/rpn2h>

Open APIs

But...

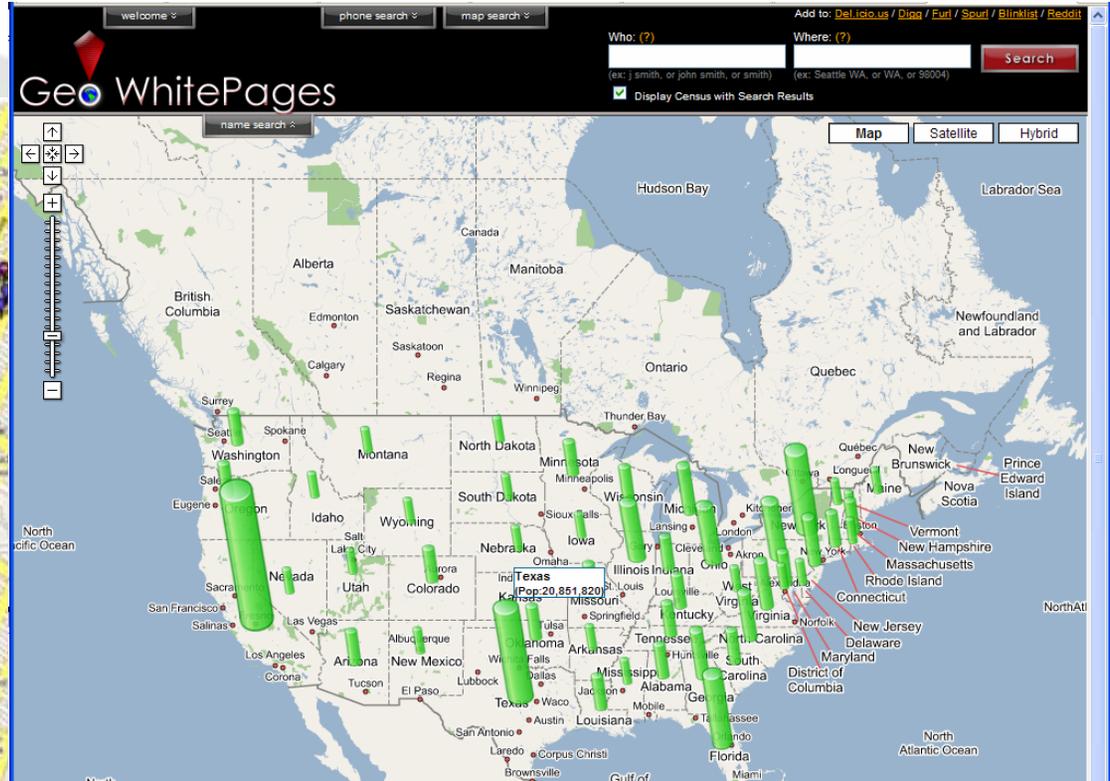
The screenshot shows the Google Maps API Version 2 Reference page. At the top, there is the Google Maps logo and the text "Google Maps API". Below this, there are links for "Sign up for an API key", "API Documentation", "API Help", "API Terms of Use", "API Blog", and "API Discussion Group". The main heading is "Google Maps API Version 2 Reference". Below the heading, there is a paragraph: "If you only want to use the map to display your content, then you need to know these classes, types, and functions:". This is followed by a grid of links to various classes and types, including GMap2, GIcon, GEventListener, GMapOptions, GPoint, GXmlHttpRequest, GInfoWindow, GSize, GXml, GInfoWindowTab, GBounds, GXmlHttpRequest, GInfoWindowOptions, GLatLng, GLog, GMarker, GLatLngBounds, GDownloadUrl, GMarkerOptions, GControl, GBrowserCompatible, and GPolyline. Below this grid, there is another paragraph: "If you want to extend the functionality of the maps API by implementing your own controls, overlays, or map types, then you also need to know these classes and types:". This is followed by another grid of links to classes and types, including GMapPane, GControlAnchor, GCopyrightCollection, GOverlay, GMapType, GCopyright, GControl, GMapTypeOptions, GProjection, GControlPosition, and GTileLayer. At the bottom of the screenshot, the text "class GMap2" is visible.

The screenshot shows the Yahoo! Developer Network page titled "Creating a REST Request for Yahoo! Search Web Services". The page has a navigation bar with "Developer Network Home" and "Help". Below the navigation bar, there is the Yahoo! logo and the text "DEVELOPER NETWORK". The main heading is "Creating a REST Request for Yahoo! Search Web Services". On the left side, there is a sidebar with links to "Home", "del.icio.us", "Finance", "Flickr", "HotJobs", "Maps", "Merchant Solutions", "Music", "Design Patterns", and "RSS Feeds". The main content area has a heading "Creating a REST Request" and a paragraph: "The Yahoo! Search Web Services are all REST services. That means you can easily construct request URLs that will work in your browser, on the command line, and in your code. For our example, we'll construct a query to search the web for PDF files containing the term 'finances'. See the [web search documentation](#) to understand the details of this service." Below this, there is a section "URL Construction" with a paragraph: "Most API requests will use GET. If the specific documentation requires POST, see the section on [POST URL construction](#) below." This is followed by a paragraph: "All search request URLs start with the hostname and resemble the following sample:" and a code block: "http://api.search.yahoo.com". Below this, there is a paragraph: "After the hostname are the service name and version number:" and a code block: "/WebSearchService/V1/". This is followed by a paragraph: "Next is the method followed by a question mark." and a code block: "webSearch?". Below this, there is a paragraph: "These components form the base URL." and a code block: "http://api.search.yahoo.com/WebSearchService/V1/webSearch?". This is followed by a paragraph: "The method is followed by the actual query parameters, which take the form argument=value, where the arguments and values are [url encoded](#). Multiple parameters are separated by an ampersand (&). The following example searches the web database for PDF files containing the term 'finances':" and a code block: "http://api.search.yahoo.com/WebSearchService/V1/webSearch?appid=YahooDemosquery=finances&format=pdf".

When will the ads appear?

Hate MSFT

Love Google Labs



NOV 2008						
M	T	W	T	F	S	S
		1	2	3	4	5 6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

All Art Blues & Jazz

Comedy **Misc Events**

Museums & Galleries Music Other

Music Plays Reggae Rock & Pop

Soul & R&B **Theater**

Unclassified

8	San Jose Museum of Ar...	2 Events	+
9	Big Lil's Comedy Caba...	2 Events	+
10	San Jose Center for t...	2 Events	+
11	San Jose Repertory Th...	2 Events	+
12	San Pedro Square	1 Events	+

Yahoo Joins In

Mashups!

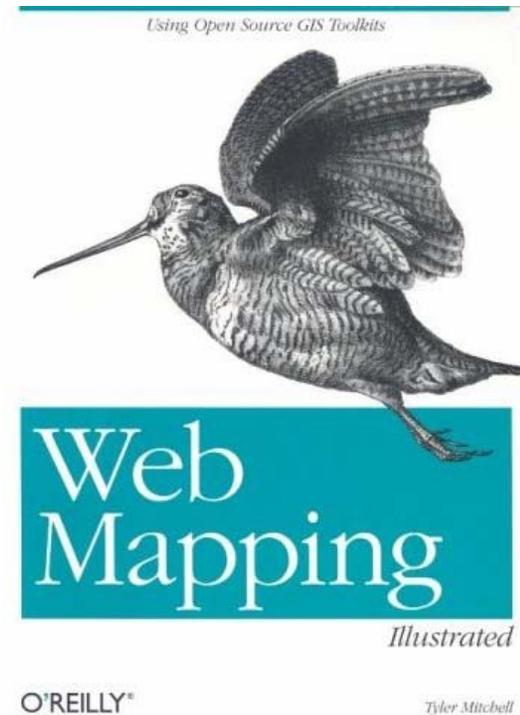
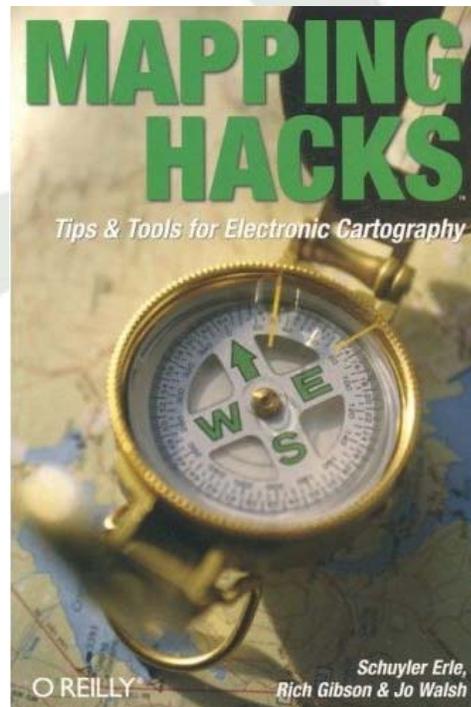
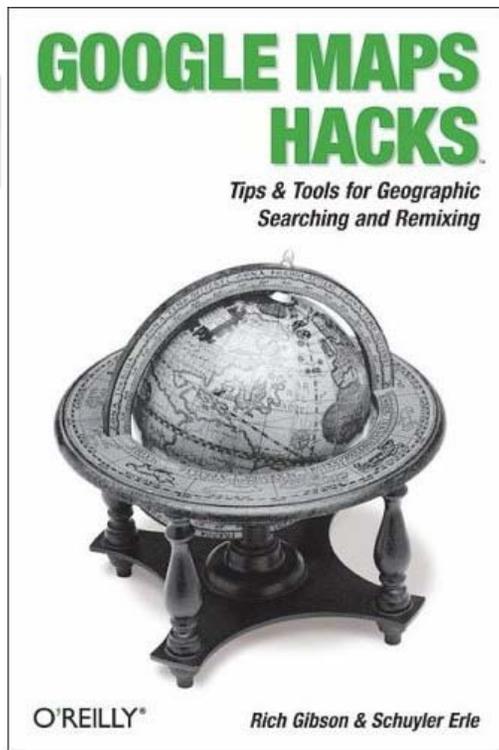
Geospatial Open Source Interest – A.G.



Open Source Geospatial Software and Standards

- Standard APIs have facilitated growth.
- Open web services including OGC WMS, WFS,
 - MapServer, Mapbender
- OGC Simple feature spec for SQL (SFS)
 - PostGIS/PostgreSQL
 - MySQL/MySAM spatial

Geospatial Open Source Takes Off



Autodesk goes Open Source

- Why we did it
 - Our users wanted it (we're too slow)
 - It makes business sense for MapGuide
 - It makes business sense for Map
 - It makes business sense for Topobase.

Standard APIs created commodization opportunities for web mapping

- Drives closed source genres into open source genres
- Context (commoditization) is fertile ground for open source
- Standard APIs are closely associated with context, and move software genres into context from core.
- As standard geospatial APIs emerge (ISO, OGC, Google Maps 2.0,..) open source geospatial will become more ubiquitous.

Questions?
gary.lang@autodesk.com



OSGeo.org
The Open Source
Geospatial Foundation