Internet mapping

Jan.bliki@eea.eu.int
European Environment Agency
European Emission Register 2004
EEA Spatial data infrastructure

Public GIS services growing exponential

- Number of map applications
- Number of mapping services

![Bar chart showing the growth of map applications and mapping services from 2003 to 2006.](chart.png)

European Environment Agency
European Nature inf. system 2005
EEA Spatial data infrastructure

Internal users

Number of GIS servers
Number of GIS Users
Number of licenses

2003 2004 2005 2006

Number of GIS servers
Number of GIS Users
Number of licenses
Land cover viewer 2005
EEA Spatial data infrastructure
Storage implications

Diskspace available (GB) vs Diskspace used (GB) from 2003 to 2006.

- Diskspace available increased from 160 GB in 2003 to 8000 GB in 2006.
- Diskspace used increased from 800 GB in 2003 to 8000 GB in 2006.

European Environment Agency
EEA GIS Architecture

- ESRI ArcCatalog/ ArcMap (9.1)
- ESRI ArcIMS / ArcSDE (9.1)
- Microsoft SQL-Server (2005) [Oracle]
- Microsoft Windows XP [Unix]
- GeoServer (WFS-Transactional)
- .NET 2.0 / JAVA (server)
- Macromedia Flash 7.0 (8.0)
Other RIA platforms

JavaScript
- Simple development environment.
- Complex for rich applications.

AJAX
- Based on top of JavaScript.
- Combines DHTML and A Sync connections.

Flash Macromedia
- Full Rich Internet Application platform.
- Great graphic designer env.
- Not well known by developers.
- Needs plug-in.

SVG
- Excellent vector manipulation. Uses JavaScript.
- Needs plug-in.

JAVA for the Client
- Full Rich Internet Application platform.
- Pure development env.
- Needs plug-in.

Flash Macromedia is a plug in!

http://en.wikipedia.org/wiki/Macromedia_Flash
Client – Server (Traditional)

 ASP / .NET / ZOPE / .PHP
 AJAX / JavaScript
Client – Server (Direct)

JAVA / FLASH

Internet users

Web browsers

Servers side

Map servers

WMS

AXL

WFS

Internet server

European Environment Agency
EEA Open source program
Map components since Feb 2006

15667 visits since 12 Jun 2006, total visits 15618 since 12 Jun 2006, updated weekly

Distance in which individuals are clustered
Total number of visits depicted above = 15637

Dot sizes:
- = 1000 +
= 100 - 999
= 10 - 99
= 1 - 9

European Environment Agency
Open source at work...
Develop components

- Slower to build components.
- Very easy to re-use.
- Reduces the complexity.
- Less bugs over time.
Available components

Map component
- Manage user interactions
- Holds a mosaic of all loaded images

Server Connectors
- Translate requests to server languages
- Query map servers
- Error handling
Available components

Tool box
- Allow users to change map behaviour
- Remembers what has been selected

Legend
- Holds to image returned from ArcIMS

Scale slider
- Allows instant zoom
- Mange zoom intervals that can be specified by the developer.
Available components

Scalebar
- Animated scale bar
- Server independent

Status component
- Shows server status

Virtual layer component
- Create new layers
- Alter existing layers (Where, Join)
- Initially turn layers on/off
Available components

Identify layer
- Define layer(s) users can select
- Parse the content to another flash component.

Save local component
- Can store a current place, view and selection on the local PC.

Geo-movieclip component
- Retrieves feature information
## Other developments

<table>
<thead>
<tr>
<th>ArcXML</th>
<th>WMS</th>
<th>OLAP</th>
<th>SQL / SOAP</th>
<th>WFS / GML</th>
<th>Flash streams</th>
</tr>
</thead>
<tbody>
<tr>
<td>Map</td>
<td>done</td>
<td>done</td>
<td>-</td>
<td>-</td>
<td>Phase 5</td>
</tr>
<tr>
<td>Identify</td>
<td>done</td>
<td>x</td>
<td>Phase 3</td>
<td>done</td>
<td>x</td>
</tr>
<tr>
<td>Graphs</td>
<td>done</td>
<td>-</td>
<td>Phase 3</td>
<td>Done (part)</td>
<td>x</td>
</tr>
<tr>
<td>Movie</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Pivot</td>
<td>-</td>
<td>-</td>
<td>Phase 3</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Update</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>done</td>
<td>done (part)</td>
</tr>
<tr>
<td>Query</td>
<td>Done</td>
<td>-</td>
<td>Phase 3</td>
<td>Done</td>
<td></td>
</tr>
<tr>
<td>Feature</td>
<td>done</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Phase 4</td>
</tr>
</tbody>
</table>
Our experiences on map services

• Strong RAI client makes live easier for the developer
• Naming conventions are very crucial when multiple maps are produced on the same map services
• User request & Server response must be disconnected to give a good user experience
• Service stability ensures people come back (> 99.5%)
• Animation is helping users understand what is happening
Related links

- http://www.eea.eu.int (EEA website)
- http://www.bliki.com/flashims (Tools)
- http://eionet.eu.int/gis (Other GIS work)