CartoWeb 4

An easy to use and extensible web GIS application
Table of content

- Camptocamp Presentation
- Why is CW4?
- What is CW4?
- History of CartoWeb (different versions)
- CW3 vs. CW4
- Architecture
- Client
- Server
- Demos
- Questions
Camptocamp, an Open Source Base Camp!

- **35 employees**
  - Switzerland & France
- **About 50 to 70 % of growth per year since 2002**
- **3 activity domains**
  - Spatial solutions
  - Business solutions
  - Infrastructure solutions
- **4 services poles**
  - Consulting
  - Engeneering
  - Supporting
  - Training

**Geo-spatial Solutions**
- Webmapping
- GIS
- Spatial Data
- Infrastructures
- Web Services

**Business Solutions**
- ERP
- Business Intelligence
- ETL

**Infrastructure Solutions**
- Security
- Linux Server
- VoIP

**Services Poles**
- CONSULTING
- ENGNEEERING
- SUPPORT
- TRAINING
CartoWeb 4: Why?

- In web-GIS applications, people are waiting for:
  - Frameworks based on Web 2.0 standards
  - Intuitive and cool controls for the map management
  - Advanced UI components (tree, ...)
  - Server-side services (authentication, search, ...)
  - Server-side processing (routing, editing, ...)
  - The ability to include GIS functionalities into existing web-sites
CartoWeb 4: What is it?

- Web based framework
- Web GIS
- Built on top of OpenLayers
- Extensible
- Easy to implement
- Easy to integrate into existing website
- Server-side process
History of CartoWeb

- CartoWeb
  - 2001
- CartoWeb 2
  - 2003
    - php mapscript
    - UI: HTML / Rosa Applet
- CartoWeb 3
  - 2005
    - php mapscript
    - UI: DHTML
    - Client and Server
    - Continues to be maintained
CartoWeb 4

- Based on OpenLayers and DOJO toolkit
- Server-side language independant
- Map engine independant
- Easy to integrate in existing HTML pages
## CW3 vs. CW4

<table>
<thead>
<tr>
<th></th>
<th>CartoWeb3</th>
<th>CartoWeb4</th>
</tr>
</thead>
<tbody>
<tr>
<td>server-side language</td>
<td>php/mapscript</td>
<td>language independant</td>
</tr>
<tr>
<td>javascript</td>
<td>old style code</td>
<td>based on strong javascript API's</td>
</tr>
<tr>
<td></td>
<td>DHTML</td>
<td>DOJO, OpenLayers</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Web2.0 style code</td>
</tr>
<tr>
<td>integration in an</td>
<td>needs hack</td>
<td>easy</td>
</tr>
<tr>
<td>existing site</td>
<td></td>
<td></td>
</tr>
<tr>
<td>layout management</td>
<td>tricky</td>
<td>easy</td>
</tr>
<tr>
<td>AJAX</td>
<td>partly available</td>
<td>fully integrated</td>
</tr>
<tr>
<td>extensible</td>
<td>plugins</td>
<td>widgets + plugins</td>
</tr>
<tr>
<td>compliancy</td>
<td>OGC compliancy available with mapserver</td>
<td>OGC compliancy via OpenLayers, can also load</td>
</tr>
<tr>
<td></td>
<td></td>
<td>commercial layers (google, yahoo, etc...)</td>
</tr>
<tr>
<td>map engine</td>
<td>mapserver only</td>
<td>engine independant</td>
</tr>
</tbody>
</table>
What CartoWeb 4 adds to OL?

- OpenLayers
  - Javascript only API
  - Client side
  - May require development knowledge
  - Is NOT built to do application specific tasks

- CartoWeb 4
  - Easy to re-use widgets (using DOJO toolkit)
  - Widgets and plugins oriented architecture
  - May not require development
  - Server-side features
  - Complete web-GIS applications
  - A unique place where app-oriented functionalities built on top of OpenLayers can be gathered
**CartoWeb Client**
- Javascript components
- IHM elements (DOJO)
- Interacts with OpenLayers API
- Interacts with server-side services

**CartoWeb Server**
- Server-side components
- Interacts with CartoWeb Client
- Extensible to build application specific modules
- Language independent
Client-side
Widgets (DOJO)
- Easy to integrate in existing HTML code
- Configurable using attributes
- May include HTML templates (Dijit)

```html
<div id="geoStat" dojoType="cartoweb.widgets.GeoStat.Choropleth"
    idAttribute="country"
    indicators="['birth_rt', 'death_rt', 'fertility']"
    geoStatUrl="world_factbk_simplified_africa.json"></div>
```
Client-side

- Plugins
  - Javascript classes
  - Interact with OpenLayers
  - Interact with CartoWeb Server
    - send HTTP requests
    - receive JSON responses
  - Can be extended for application specific needs
Server-side

- language independant services
Server-side

- Server-side processes
- JSON/GeoJSON
- Well described interfaces to interact with client plugins and widgets
- Language independant
  - Python
  - Java
  - Php
  - ...
Python modules

- Relies on python libraries: Shapely, SQLAlchemy, GeoJSON
- CW4 libraries:
  - SQLAlchemyGeom
  - PfpFeature
- Application specific code:
  - Pylons controllers
  - Pylons models
Usage

- No server-side dependancies
  - Example widgets: Map, Tree
  - Can be integrated in existing sites

- Server-side dependancies
  - Example widgets: routing, search
  - Requires server-side processes
  - Currently works with Pylons framework
Available Components

- Map
- Layer Tree
- Geostat
  - Choropleths
  - Proportionnal symbols
- Search
  - XY
  - Extent
  - Coupled (attribute + extent)
- Routing
Examples/Demos

- Routing

CartoWeb 4

routing demo

<table>
<thead>
<tr>
<th>Pedestrian</th>
<th>Disabled</th>
</tr>
</thead>
<tbody>
<tr>
<td>from</td>
<td>AAD 1 31</td>
</tr>
<tr>
<td>to</td>
<td>BS 112</td>
</tr>
</tbody>
</table>

get route
Examples/Demos

- Search

CartoWeb 4

CartoWeb 4 Search demo

Search results:
# objects found: 31

<table>
<thead>
<tr>
<th>elevation</th>
<th>name</th>
</tr>
</thead>
<tbody>
<tr>
<td>2501</td>
<td>Ambrevetta - Tardévant</td>
</tr>
<tr>
<td>2409</td>
<td>Mont Charvin</td>
</tr>
<tr>
<td>2538</td>
<td>Mont Charvet</td>
</tr>
<tr>
<td>2439</td>
<td>Col de Savatan</td>
</tr>
<tr>
<td>2500</td>
<td>Les Parossaz - Antécime NW</td>
</tr>
</tbody>
</table>
Examples/Demos

- Geostat

CartoWeb 4

CartoWeb 4 GeoStat demo

- Layers tree
  - Layer tree:
    - Satellite
    - OpenLayers WMS

- Choropleth
  - Indicator: birth_rate
  - Method: Equal Intervals
  - Nb classes: 6
  - Min color: [color]
  - Max color: [color]

Legend:
- 0.000 - 8.455 (1)
- 8.455 - 16.910 (1)
- 16.910 - 25.365 (7)
- 25.365 - 33.820 (5)
- 33.820 - 42.275 (22)
- 42.275 - 50.730 (12)
Release

- (Currently in alpha-release) Still working on it
- Version 0.1
- Licence GPL
- Feedbacks, Contributions and patches graciously accepted

Current developers:
- Pierre Giraud
- Frederic Junod
- Eric Lemoine
- Sylvain Pasche
How To Contribute?

- Report bugs using the trac interface
- Discuss new features using the MailingList
- Ask questions on IRC freenode #CartoWeb 4
- Submit patches
- SVN
- All information available soon