

# egeo.ch WebGIS

an Internet GIS framework for  
the Swiss federal administrations based on  
CartoWeb, Mapserver and PostGIS



Sylvain Pasche  
Camptocamp SA  
PSE C

CH-1015 Lausanne  
Switzerland

info@camptocamp.com  
<http://www.camptocamp.com>

## Outline

---

- Introduction
- Presentation of egeo.ch and COSIG
- Presentation of CartoWeb technical infrastructure
- Demonstrations
- Conclusion
- Questions



## Camptocamp SA

- **Camptocamp SA:**

- Company founded in 2001 in Lausanne, Switzerland
- Head office in Lausanne Switzerland, branch office in Chambéry -France
- 7 full time 2 part-time
- Active in Switzerland and France

- **Activities**

- Consulting and development of web services oriented applications (mainly focused on GIS and tourism activities)
- Linux server administration
- Web-community infrastructure for mountain and outdoor activities



3

## COGIS (<http://www.cosig.ch>)

- **GI (Geographic Information) & GIS (Geographic Information Systems) coordination of the Swiss federal administration**



- **Missions:**

- better promotion of geographical information, its methods and tools;
- common strategy for geographical information and GIS;
- encouragement of cooperation between GIS projects
- promotion in the use of tools and standards for modeling and geographical data exchange.

- **To realize these missions COSIG has implemented the e-geo.ch strategy.**



4

## Geographical data in Swiss administration offices

- Swiss federal administration offices produce and acquire lots of geographical information and data.
- These valuable data are often not used as much as they could be:
  - Other offices and/or citizens don't have easy access to these data (or don't know that they exists).
- => GIS information is unfortunately often poorly used
- Some offices where conducting small informal and uncoordinated projects to try to publish and exploit their data.
- Most offices would like to get support for the publication of their data



5

## egeo.ch webgis-application project

- COGIS decided to start a project to build a WebGIS framework application for the Swiss federal administration
- This project is included in the global egeo.ch strategy
- The requirements were:
  - Sharing of all swisstopo GIS data as background layers (raster maps 25'000 to 1'000'000, vector data, orthophotos, administrative boundaries) around 2 TB of data
  - Use of delocalized office-specific information possible
  - Exportation of tabular attribute data
  - Advanced printing capabilities
  - Localization services through Swissnames, Swiss addresses, Administrative boundaries
  - Easy implementation through customization



6

## *CartoWeb for e-geo.ch web-GIS applications*

---

- **COGIS** chose CartoWeb solution, from camptocamp SA, to implement e-geo.ch webGIS application framework
- CartoWeb is a web-service oriented application which is based on Mapserver/PHPMapscript and PostgreSQL/PostGIS and XML-RPC protocol



7

## *CartoWeb architecture*

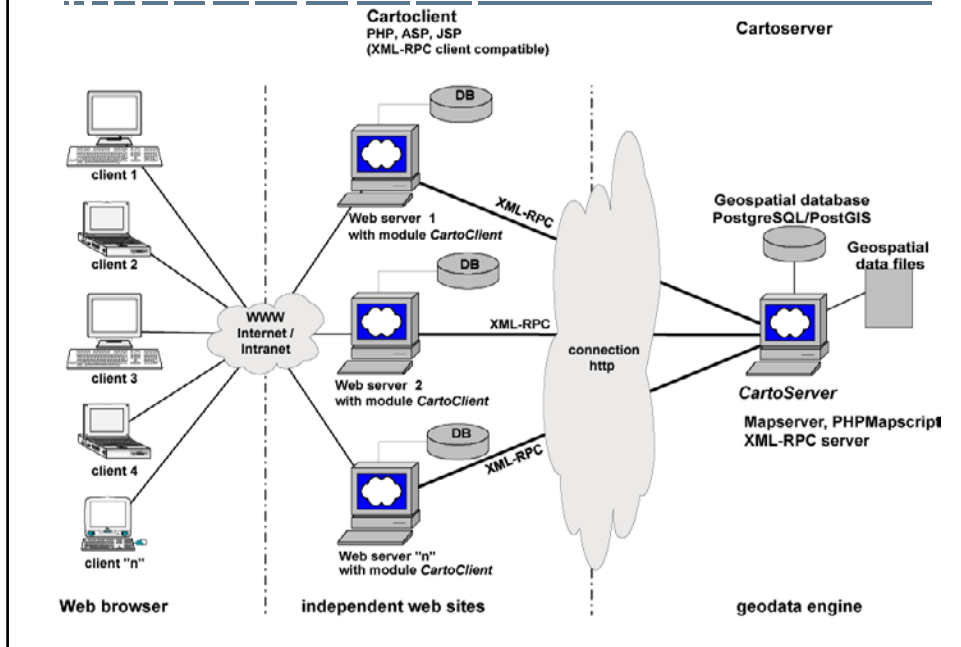
---

- **N-tiers web service oriented architecture**
- **CartoServer:**
  - Offers mapping services:
    - » Visualization, acquisition of new data, linking with external DB
  - Mapserver, PHPMapscript, PostgreSQL/PostGIS, XML-RPC server
- **CartoClient**
  - Small interface layer on dynamic website to access mapping services
  - XML-RPC client (no GIS infrastructure needed on http server)
  - Environment independent



8

## CartoWeb Architecture



## Why not just use OGC WMS?

- WMS is « image » visualization oriented
- Loss of information
- Extended scripting feature cannot be exploited
- Dynamic linking with extra feature is more complicated
- But : CartoWeb doesn't break the compatibility with OGC WMS

## *CartoWeb on the users' side*

---

- **CartoView (in CartoClient)**

- Visualization feature
- Standard functionalities of web mapping
- Templating for presentation (plain HTML and DHTML enhanced)

- **CartoGeoref (in CartoClient)**

- Java Applet
- To acquire geographical features (points, lines, polygons)
- To modify / delete existing features



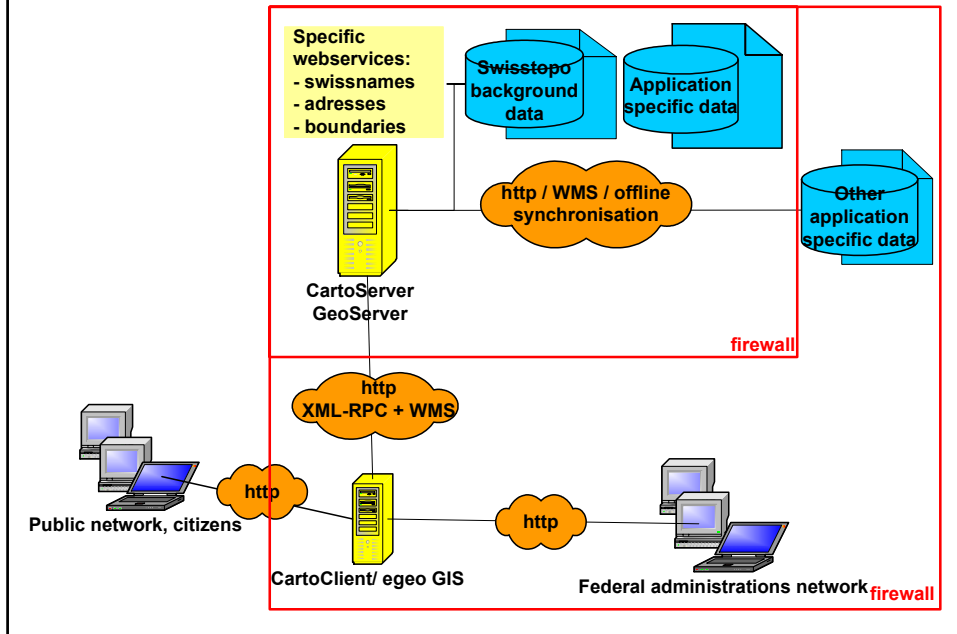
## *Main add-on of CartoWeb*

---

- **N-tiers framework. No need of GIS infrastructure on website server, but still all webmapping functionalities**
- **Easier linking to external distributed information**
- **Caching of frequently accessed map**
- **Views can be saved for later access thru GET/POST queries**
- **Objects localizations**
- **Acquisition of geographical features (points, line, surface)**
- **Hierarchical organization of layers / themes**

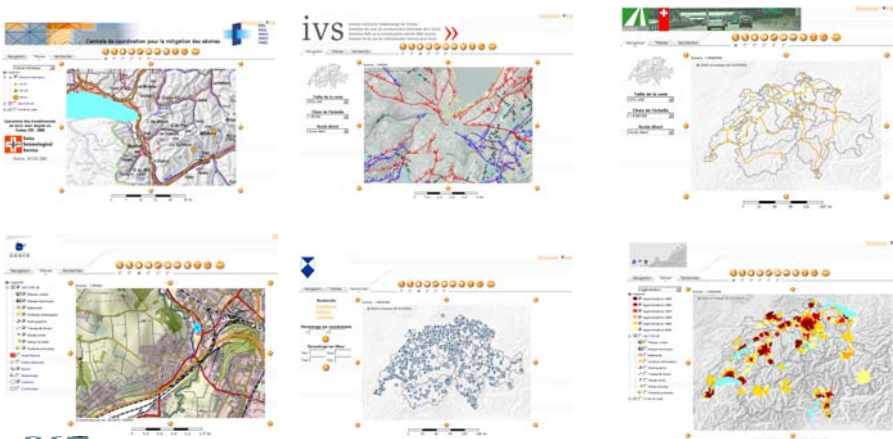


## Egeo.ch WebGIS applications architecture



## WebGIS application in production

- The project in finishing phase and in test for six months
- Six offices are using the egeo.ch during tests:



## Swiss Seismological service

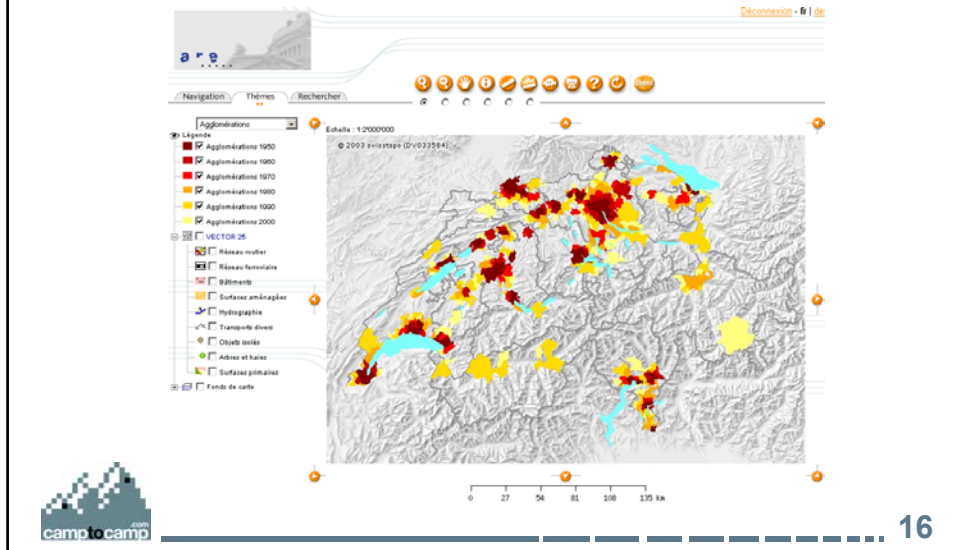
- Give seismological information to civil engineers



15

## Federal Office for spatial development

- Inform citizens about spatial development of Switzerland



16

## Protection of cultural property

- Give information to citizens and administrations

Navigation Thèmes Rechercher

Recherche  
Saisir/Names  
Addresses  
Communes

Recherche sur coordonnées  
x [ ] y [ ]

Recherche sur Ebox  
Xmin [ ] Xmax [ ]  
Ymin [ ] Ymax [ ]

© 2003 swisstopo (DVO33504)

0 33 66 99 132 165 km

camp to camp

Déconnexion - fr | de

17

## COGIS

- Intranet Web application to visualize swisstopo data

Navigation Thèmes Rechercher

Légende

- VECTOR 2D
- Réseaux routier
- Réseaux ferroviaire
- Bâtiements
- Surfaces aménagées
- Hydrographie
- Transport divers
- Objets isolés
- Alpes et hautes
- Surfaces primaires
- Swiss Names
- Carte nationale
- Relief
- Swissmaps
- Cantons
- Communes

© 2003 swisstopo (DVO33504)

0 0,3 0,6 0,9 1,2 1,5 km

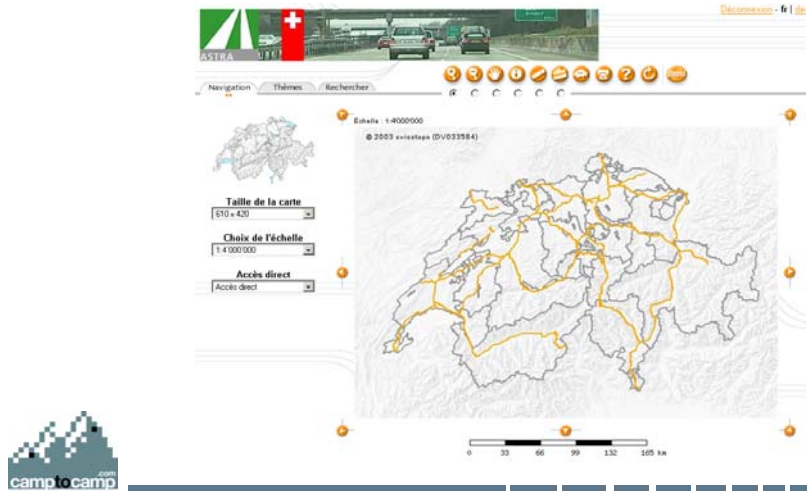
camp to camp

Déconnexion - fr | de

18

## National roads administration

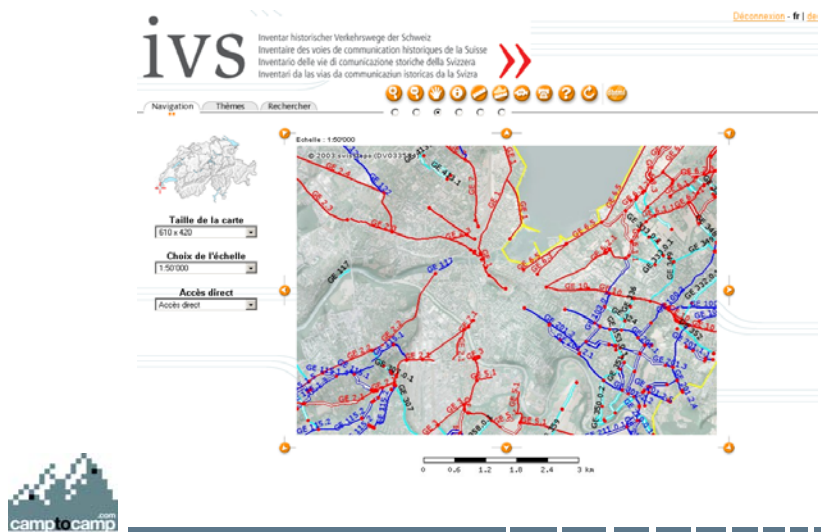
- National roads (UH-Peri):
  - Give information to states offices



19

## IVS (historical transportation route)

- Historical roads and trails in Switzerland



20

## *Egeo.ch webGIS application: main features*

- **Advanced DHTML interface**  
(HTML fallback for unsupported browsers)
- **Measuring tool (length and surfaces)**
- **Attribute data exportation as CSV**
- **Advanced printing system as PDF (A4-A3 paper size/  
96-300 dpi / title and footer edition, inclusion of legend  
and keymap,...)**



21

## *Demos: <http://e-geo.camptocamp.com/erdbeben/>*

The screenshot displays the Egeo.ch webGIS application interface. At the top, there is a navigation bar with tabs for 'Navigation', 'Thèmes', and 'Rechercher'. Below this is a toolbar with various icons for map navigation and interaction. The main area is divided into a legend on the left and a map on the right. The legend, titled 'Légende', lists several layers with checkboxes, including 'VECTOR 26', 'Réseau routier', 'Réseau ferroviaire', 'Bâtements', 'Surfaces aménagées', 'Hydrographie', 'Transports divers', 'Objets isolés', 'Arbres et haies', 'Surfaces primaires', 'Swiss Names', 'Carte nationale', 'Relief', 'Swissimage', 'Cantons', and 'Communes'. The map shows a detailed view of a city area with roads, buildings, and green spaces. A scale bar at the bottom indicates a scale of 1:25000, with markings from 0 to 1.5 km. The coordinates (501474 / 154753) are displayed at the bottom left of the map area.

## *Conclusion*

---

- **CartoWeb / Mapserver / PostGIS has proven to be a very effective and flexible solution to implement egeo.ch webGIS solution.**
- **CartoWeb is a way to give access to all features (and more) of Mapserver to website without infrastructure constraints excepts XML-RPC.**
- **Mapserver framework has proven to be very good solution to build the CartoWeb-style application**



## *Conclusion / Questions*

---

- **Thanks to Mapserver developers and community**
- **Camptocamp is growing and will be able to increase its participation to Mapserver development.**
- **Your questions are welcomed**



## *CartoWeb in action*

---

- Some websites using CartoWeb:

- <http://sitn.ne.ch>

- <http://map.epfl.ch>

- <http://www.4000plus-vs.ch/map.html>

- <http://www.lausannejardins.ch/cartoweb.html>

