CampusMapper
a light-weight internet mapping tool using MySQL, Tomcat and SVG

http://geoserver.itc.nl/campusmapper/

Barend Köbben, Stephanie Krane
International Institute for Geo-information Sciences and Earth Observation (ITC)
PO Box 6, 7500AA Enschede (The Netherlands)
{kobben,krane}@itc.nl
Outline

Where CampusMapper came from
- GDI\textsuperscript{LIGHT}
- RIMapper
- Wireless Campus LBS

What CampusMapper is
- Demo (or DIY @ geoserver.itc.nl/campusmapper)

Where CampusMapper is going to
- RIMapperWMS...?
GDI LIGHT

- Lightweight Geo-Data Infrastructure based on open standards/open source software
- testbed/playing ground at ITC
  - for research: PhD & MSc work, projects
- server-side focus on MySQL/PostGIS, Java, open source OWS services
- client-side focus on SVG

➔ first project was “RIMapper”
RIMapper - DB

MySQL/PostGIS DB with OGC SFS support stores all features as objects with OGC geometry
simple XML map configuration files to define map layout and interactivity
RIMapper - app

Java servlets to deliver SVG output (=application)

makeSVG

XML2SVG

parseXML
simplest XML configuration...
..adding data-driven colours
...adding interactivity

```xml
<?xml version="1.0" encoding="iso-8859-1"?>
<!DOCTYPE RIM PUBLIC "-//ITC/rcode.dtd">
<RIM TYPE="SVG_STANDALONE" DB="adb" UN="adb" PW="latini">
  <HEADER>
  </HEADER>
  <STYLE DBID="default" NAME="defSVGDoc" TYPE="CSS"/>
  <STYLE DBID="default" NAME="defArea" TYPE="CSS"/>
  <STYLE DBID="none" NAME="framecolor1" TYPE="CSS"/>
  <STYLE DBID="none" NAME="framecolor2" TYPE="CSS"/>
  <STYLE DBID="none" NAME="framecolor3" TYPE="CSS"/>
  <STYLE DBID="none" NAME="framecolor4" TYPE="CSS"/>
  <STYLE DBID="defInitPlusRIMmessage" TYPE="ECMASCRIPT"/>
  <STYLE DBID="default" NAME="showRIMData" TYPE="ECMASCRIPT"/>
  <LAYER DBID="default" NAME="frame" STYLETYPE="chorochromatic" STYLE="colore" ATTRIBS="colore, sigle">
    <ACTION TYPE="simple" NAME="showRIMData" SCOPE="feature" EVENT="onclick" PARAMS="evt, 'rim', 'sigle'"/>
  </LAYER>
</RIM>
```

sigle = 2-2-f-1087-46020F18
Wireless campus University of Twente

Europe’s largest uniform hotspot

- 140 ha campus (covered in- and outdoors)
  + Enschede city centre (outdoors)
- 650+ individual access points

every-day “working LAN” based on WiFi

testbed for wireless and mobile applications
Wireless Campus Location Based Services

- informal co-operation between ITC & UTwente
- driven by research projects + UT IT-dept + SVGopen2005 conference
- set up *infrastructure* necessary for LBS
- combines input from several research projects with practical application of techniques
- Wireless Campus LBS is intended *to serve as a testbed for* research as well as *to benefit from* research outcomes
- to provide useful *working services* for the UT campus population
FLAVOUR prototype: architecture

Friendly Location-aware conference Assistant with priVacy Observant architectURe

- Location Managers
  - Jini based (Java network-centric services)
  - provides client with location
  - registers with:
- Jini Lookup Services:
  - ‘pull’ (find others, locate resources)
  - ‘push’ (communicate with others, conference messages)
- Client application
- Mapping System

MySQL
geoDB (APs, geodata)
fixed infrastructure
Mapping system

Jini Lookup service
register/lookup
location manager
client 1
client ...
client n

MySQL
geoDB (APs, geodata)

Jini Lookup service
register/lookup
location manager
client 1
client ...
client n

WiFi network

RSS acquisition
user interface
client

© ITC Department of Geoinformation Processing - Barend Köbben & Stephanie Krane 12
FLAVOUR prototype: interface
From Flavour to CampusMapper

- Mapping system based on RIMapper
- Added features extraction in DB - based on bounding boxes
- The system seemed useful for more than Wifi localization:
  - basis for quickly and easily customised maps of the campus

CampusMapper pilot
- DHTML interface generates GET/POST requests
- JavaBeans store user/session settings
Future: towards RIMapperWMS...?

Many WMS available, some with (limited) SVG output

All use SVG as ‘graphics format’ only

SVG also can provide application logic

⇒ simple WMS conformant interface to the data
⇒ data includes built-in client-side GUI
⇒ GUI handles the map interaction and generates further requests
Future: towards RIMapperWMS?

- Data Request (Simple Features SQL)
- Data (SFS)
- Initial GetMap Request (from HTML)
- parse data to SVG
- add SVG GUI code
- SVG map + GUI
- GUI action (e.g., Zoom)
- GetMap (zoomed extent)
- Data Request (zoomed area)
- zoomed Data (SFS)

*etcetera...*
Questions...?
Answers...?
kobben@itc.nl
http://geoserver.itc.nl/campusmapper/