WhereGroup

Case Study:

PRTR

Pollutant Release and Transfer Registry Germany

What is PRTR?

Pursuant to the European PRTR regulation Germany is bound to report the release of industrial pollutants into air, water and soil and the amount of waste disposal and contaminants in waste water.

As as a European member state Germany also has to provide a mechanism that will allow the European Environmental Agency to access this data pursuant to the INSPIRE directive (for example as a web service).

Web interace for Citizens

On June 3rd the web site:
http://www.prtr.bund.de was
launched to publicly provide
this information to the
citizens.
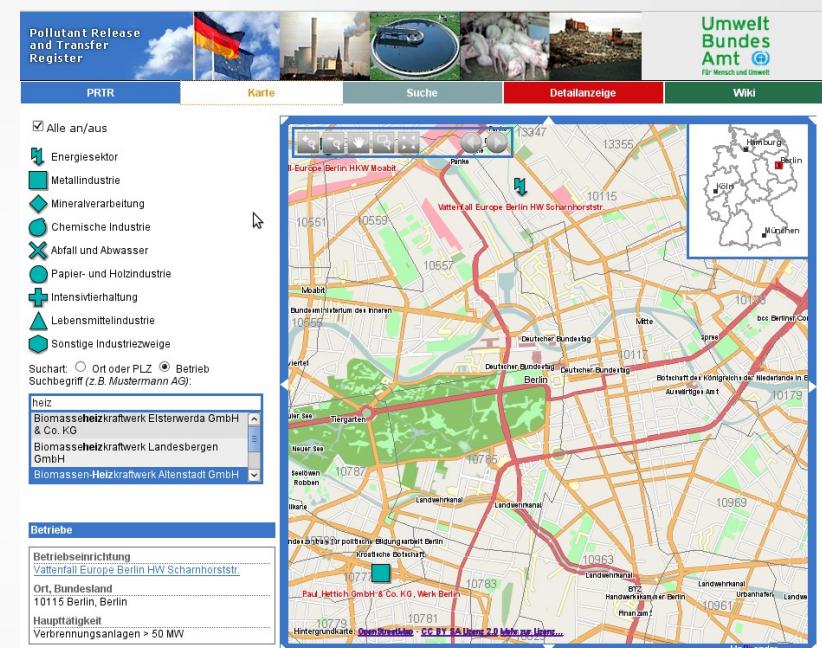
Behind the application works
an SDI.

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Schematic
diagram of a
spatial data
infrastructure
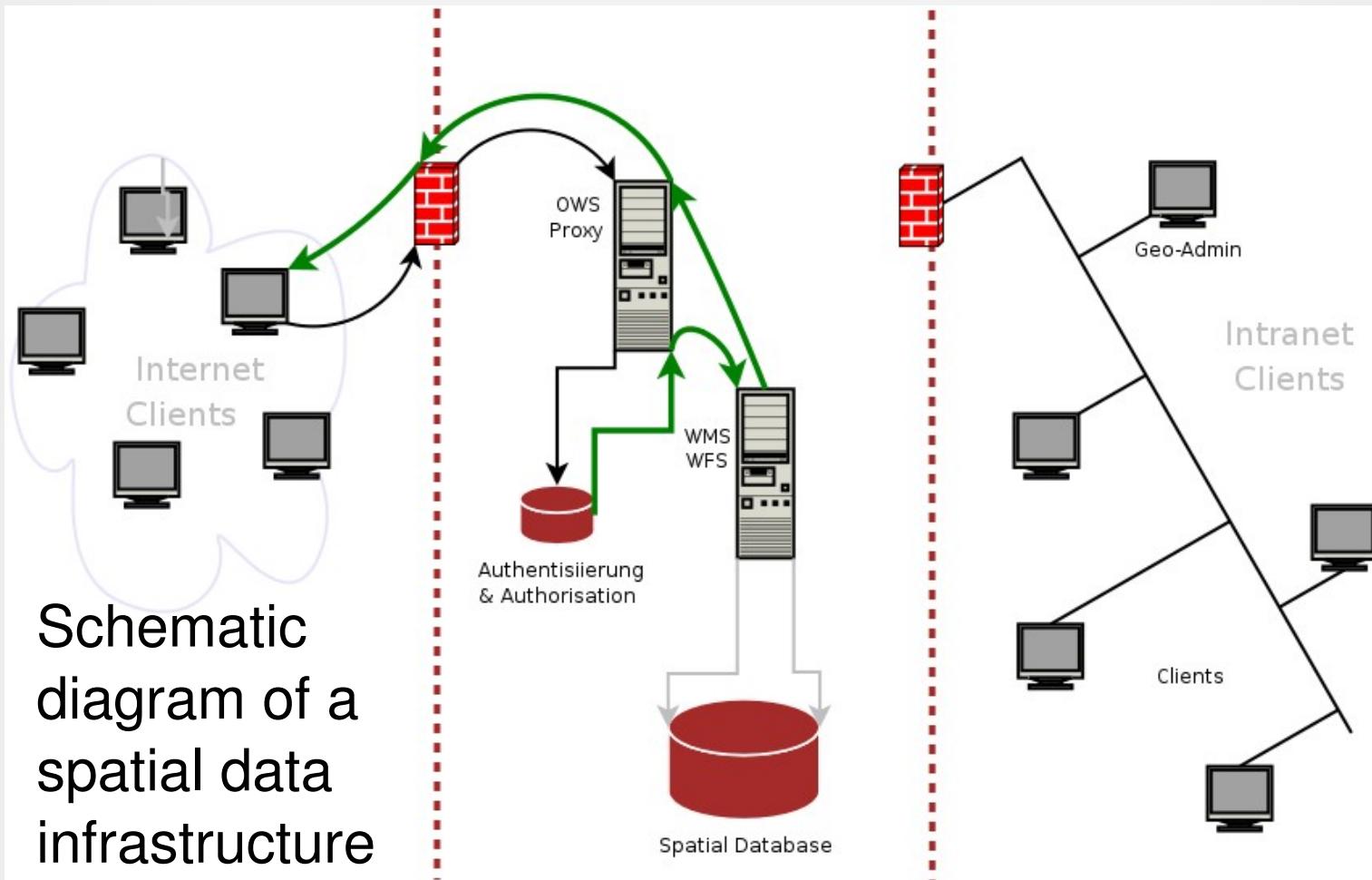
Under the Hood

The mapping component of PRTR was implemented by the **WhereGroup** in close cooperation with the German Federal Agency for Agriculture and Food on behalf of the Federal Environmental Agency.

The solution is implementated with proven **Open Source** software using international **Standards** and in consideration of the INSPIRE directive.

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Schematic view of a simple OGC WMS getMap request in a spatial data infrastructure.
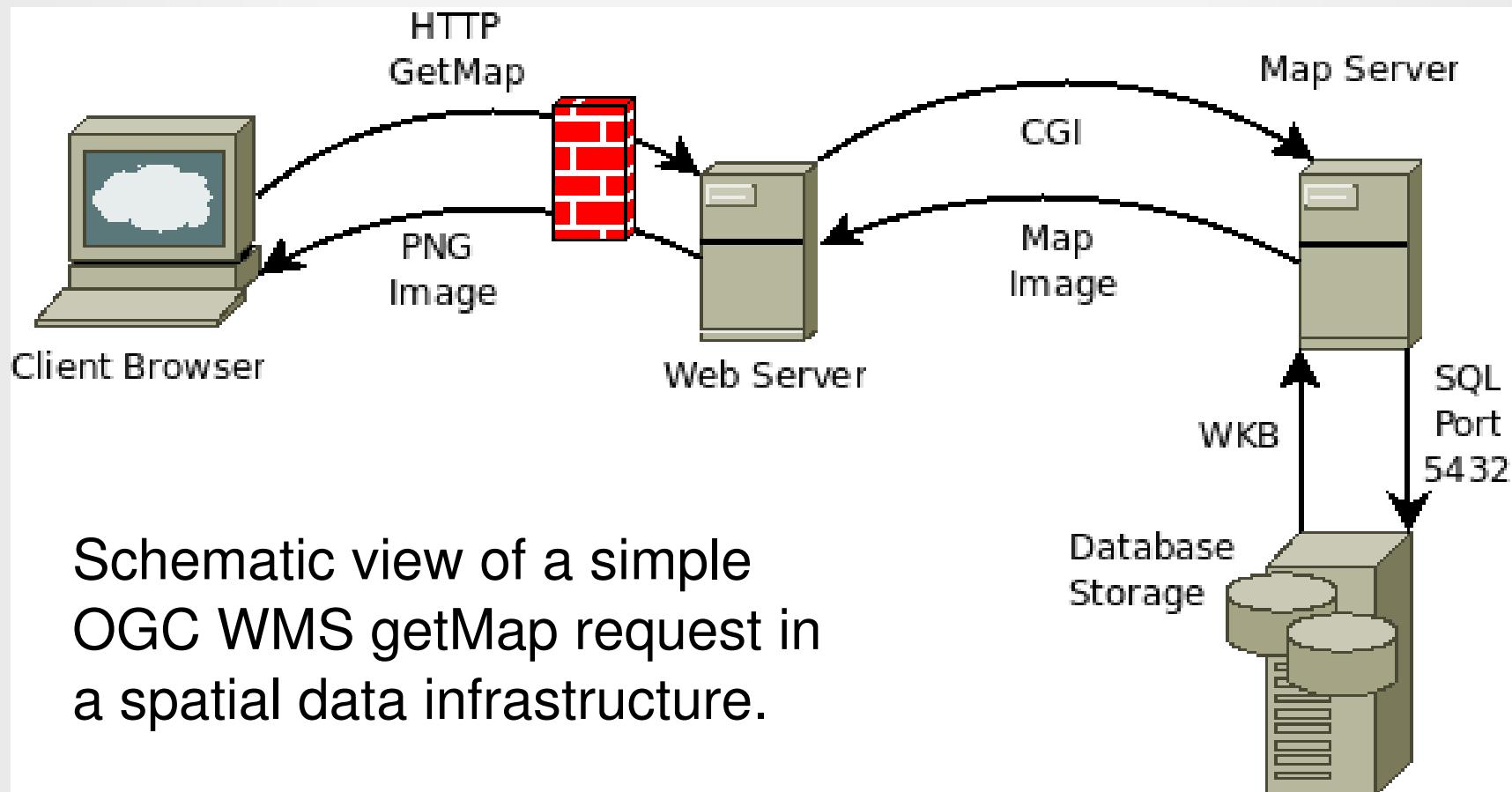
The Software

The mapping application was deployed with the geoportal framework that orchestrates the OGC WMS services of the Federal Agency for Agriculture and Food.

- Mapbender
- UMN MapServer
- PostgreSQL / PostGIS

All software of the geoportal shall support the requirements of the INSPIRE directive.

Virtualised Server Architecture

The software runs on a performance optimized and load balanced 100 CPU ESX cluster architecture.

During the first three days of operation the infrastructure served 5 million maps, with a peak of 250,000 per hour at 72% load.

PRTR-GIS
Systemarchitektur
(Schematische Darstellung)

Front-End
Webserver /
Load Balancing

Applikations-
server

Back-End
Server

Mapserver/
OSM-Webserver

Postgresql /
OSM

Firewall   Firewall   Firewall

pgsql (5432)

amstel.zadi.de   fischer.zadi.de
marathon.zadi.de   kaldi.zadi.de
famosa.zadi.de   indio.zadi.de
kingfisher.zadi.de   bohemia.zadi.de
urbach.zadi.de   superior.zadi.de
augustiner.zadi.de   tecate.zadi.de
olvi.zadi.de   montejo.zadi.de
ninkasi.zadi.de   victoria.zadi.de
kappler.zadi.de   bavaria.zadi.de
kasseler.zadi.de   eibauer.zadi.de
lindener.zadi.de   frankenheim.zadi.de
freibeuter.zadi.de   gatzweiler.zadi.de
kulmbacher.zadi.de   reudnitzer.zadi.de
schorschbock.zadi.de   tegernsee.zadi.de
unertl.zadi.de   urbanus.zadi.de
weltenburger.zadi.de   wieninger.zadi.de

http

Produktivumgebung

Vorerst für
Ortssuche

Internet   http   http   pgsql (5432)

Test-
Benutzer

osm.prtr.bund.de
www.prtr.bund.de
betriebe.prtr.bund.de

Mapbender/
Mapserver/
Webserver
bellheimer.zadi.de
alsfelder.zadi.de

pgsql (5432)

Postgresql /
PRTR
MB-Conf
schultheiss.zadi.de
(nur mapbender)

Mapserver
barre.zadi.de
weilburger.zadi.de

Postgresql /
PRTR
MB-Conf
primator.zadi.de
(e_prtr102)

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Optimizing Community Map Data

The background map of the PRTR application is based on OSM (OpenStreetMap) data that has been optimized to generalize roads and land cover. The map service is split into 5 zoom levels each of which draws data from a separate physical table. The data was generalized using simple PostGIS SQL simplify commands. It was decided to use a database to allow for differential updates of the OSM data.

Legal Background and Copyright

- The application PRTR is published by the Federal Environmental Agency (UBA). The UBA owns the copyright of the application.

- The locations of the polluting industry are operated as an OGC WMS service. It can be accessed directly. The copyright of this service is also owned by the UBA

Pollutant locations: Copyright UBA

FHH BBS, PARS Projekt Autorückbau in der Schule

Hamburg AG Heizwerk Hafen

ELANTAS Beck GmbH

OTH Oberflächentechnik Hamburg GmbH

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Copyright and license of the OSM Data

- The OSM data underlies the Creative Commons CC by SA license. All derivative works using that data thus also have to be published under the same CC by SA license.

OSM based maps: Copyright CC by SA

Postal Codes from Public Domain

- The postal codes have been taken from pulic domain. They are barely to be seen and are mainly used for navigation purposes.

Postal Codes: Public Domain
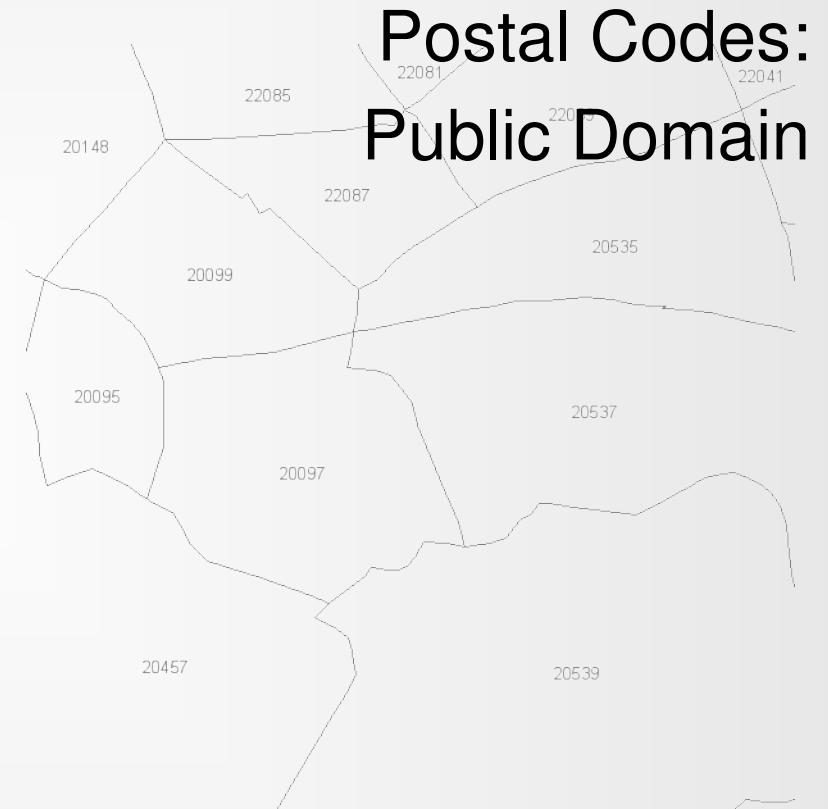
Combined Copyright

Combining the three data sources into a new map dreates a derivative of the OSM data. This might cause multiple coypright and license issues, therfore the application as yet lacks server side PDF generation


Blog: http://arnulf.us/sevendipity/archives/20-Copyright-in-a-Shrapnel-Shell.html
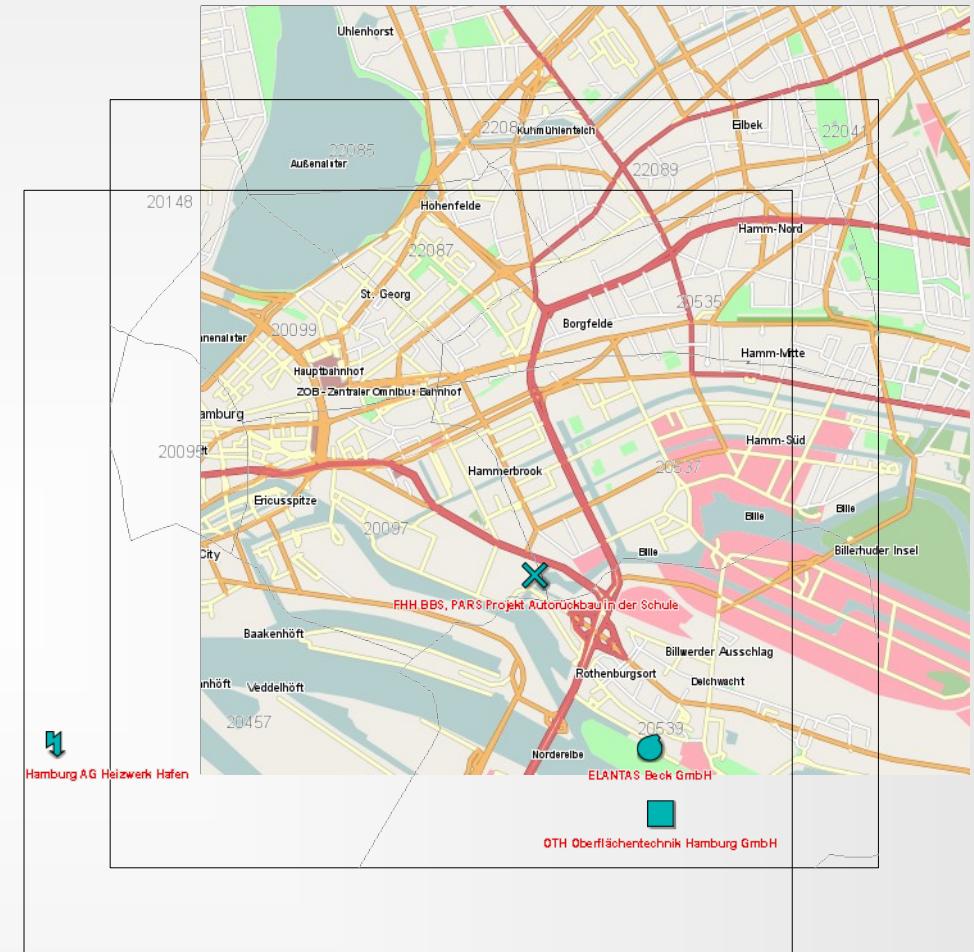
Data Quality Assurance

Simplifying the data showed issues with the structural integrity of the data which only became apparent through the use of standard technology.
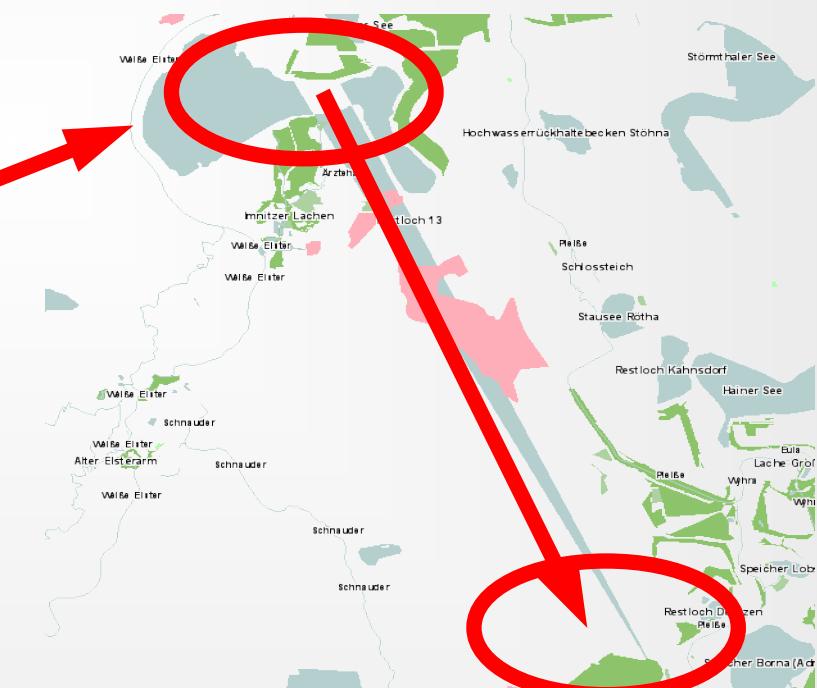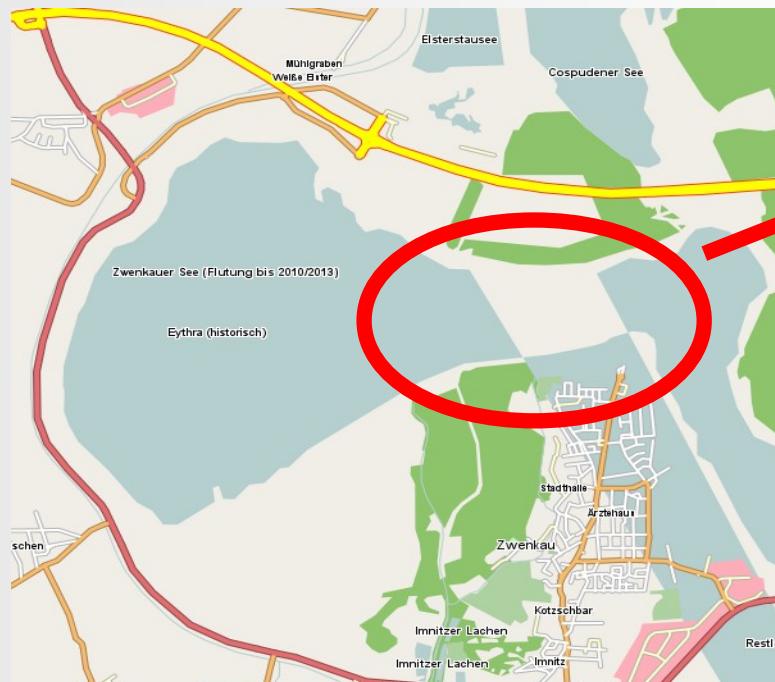
Summary

- The mapping requirements of a federal agency can be addressed with Open Source Software (we knew that...) **and** crowd sourced data (that is good news!).
- The application is fully scalable and stable.
- Some Homework needs to be done wrt copyright and licensing (we already knew that...).
- Consequent application of international standards caters for hight interoperability, security of investment and INSPIRE compatibility.

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Thank you. Questions?

http://www.prtr.bund.de

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http://www.wheregroup.com
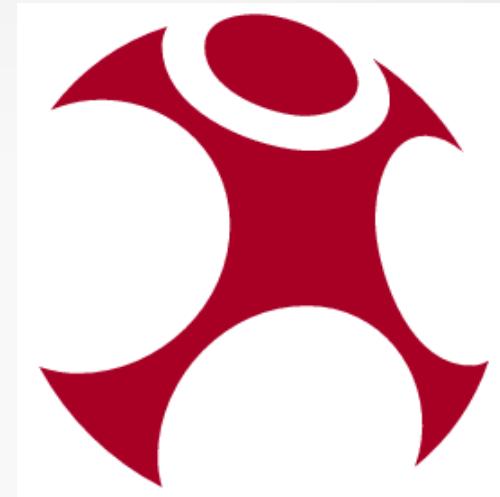
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