



FOSS4G 2019

From Desktop to Spatial Data Infrastructure with QGIS

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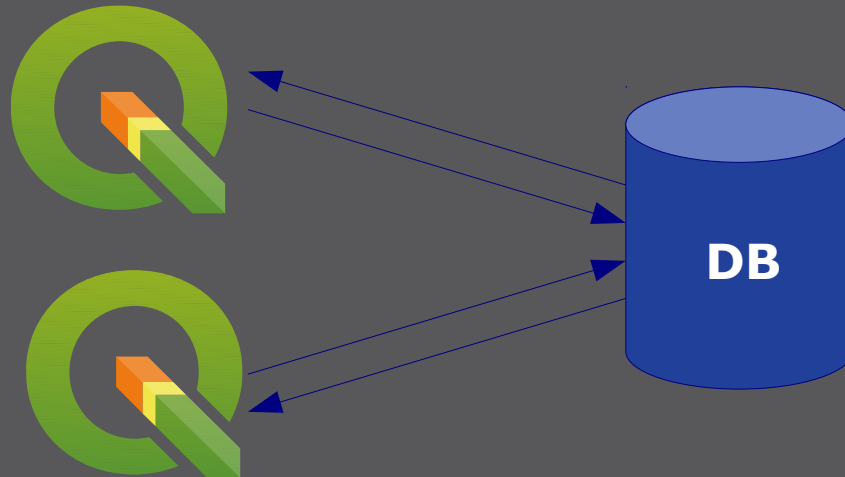


Motivation

- A company new to GIS still starts with a desktop QGIS and some shape files
- This desktop GIS is most likely QGIS
- The need for a geodata infrastructure (GDI) comes later when more and more employees are using GIS
- This presentation shows step-by-step how to create a lean GDI around QGIS



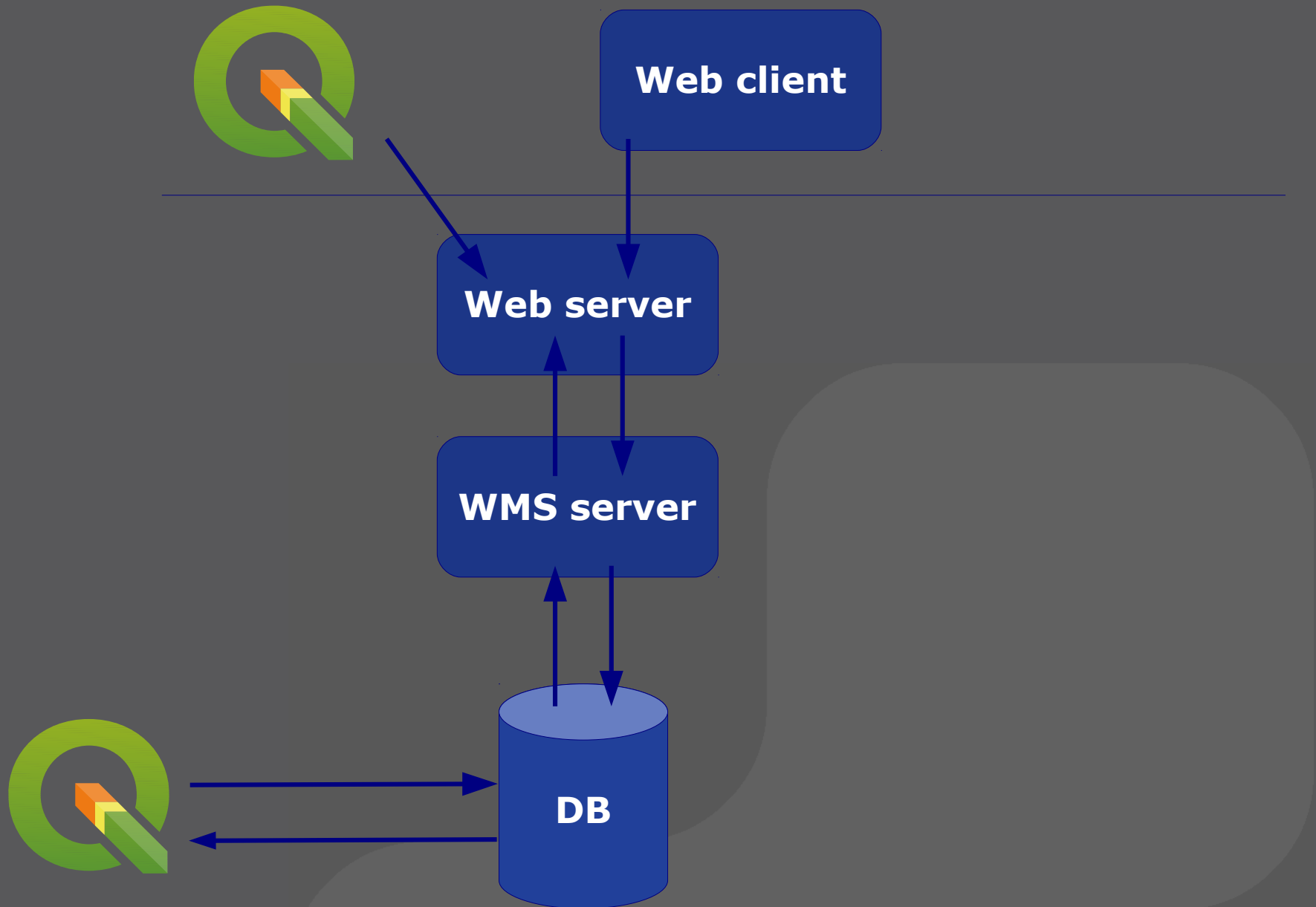
Spatial database



- **QGIS supports several Databases (e.g. PostGIS, Oracle Spatial, MS SQL Server)**
- **PostGIS is best choice for usage with QGIS**
 - Postgres provider supports nearly all provider capabilities
 - Postgres provider well tested and used in production by many users



Web Map





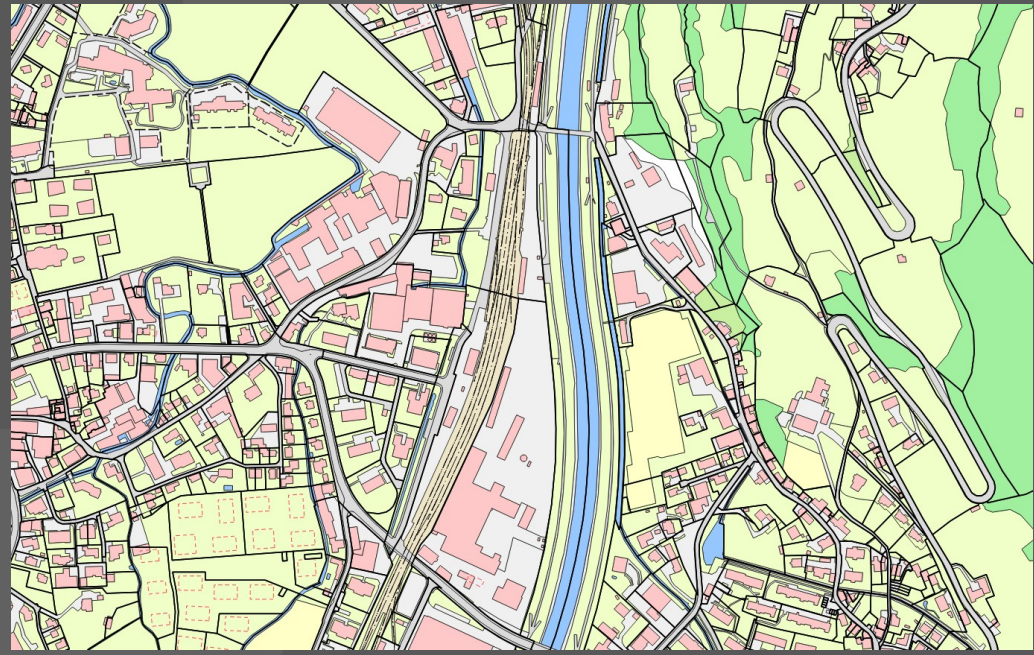
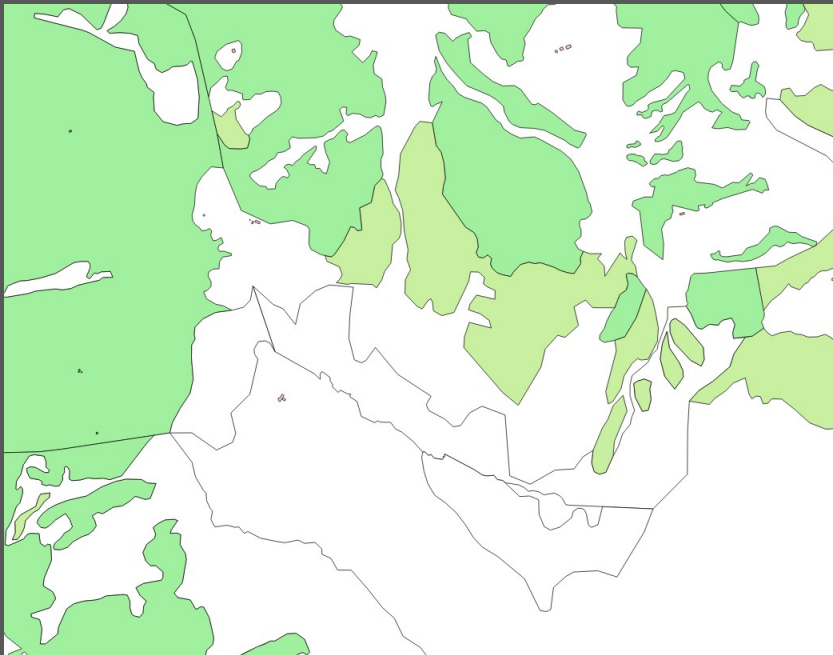
WMS Server

- We need a (HTTP) webserver and a WMS server
- In theory any WMS server can be used
- QGIS server supports advanced features:
 - Web based printing
 - Redlining
 - Selection
 - External WMS services (important for print)
- Any webserver supporting FastCGI can be used (e.g. Apache, NGINX, Lighttpd, IIS)
- Webserver matters



Webserver WMS benchmark

- › Apache mod_fcgid, QGIS server
- › NGINX, spawn_fcgi, multiwatch, QGIS Server
- › Max. 16 WMS processes
- › Map: AV-WMS Canton Glarus (Switzerland)
- › Client: jmeter, 2152 requests
- › WMS, PostGIS, jmeter all running on laptop





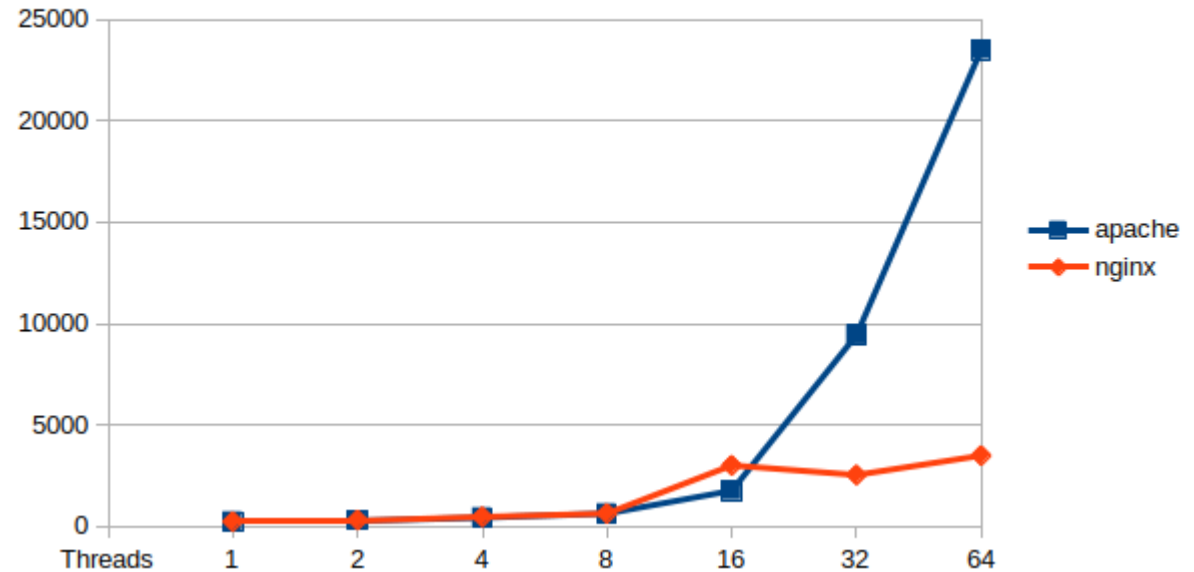
Webserver-WMS benchmark

Total 2152 requests

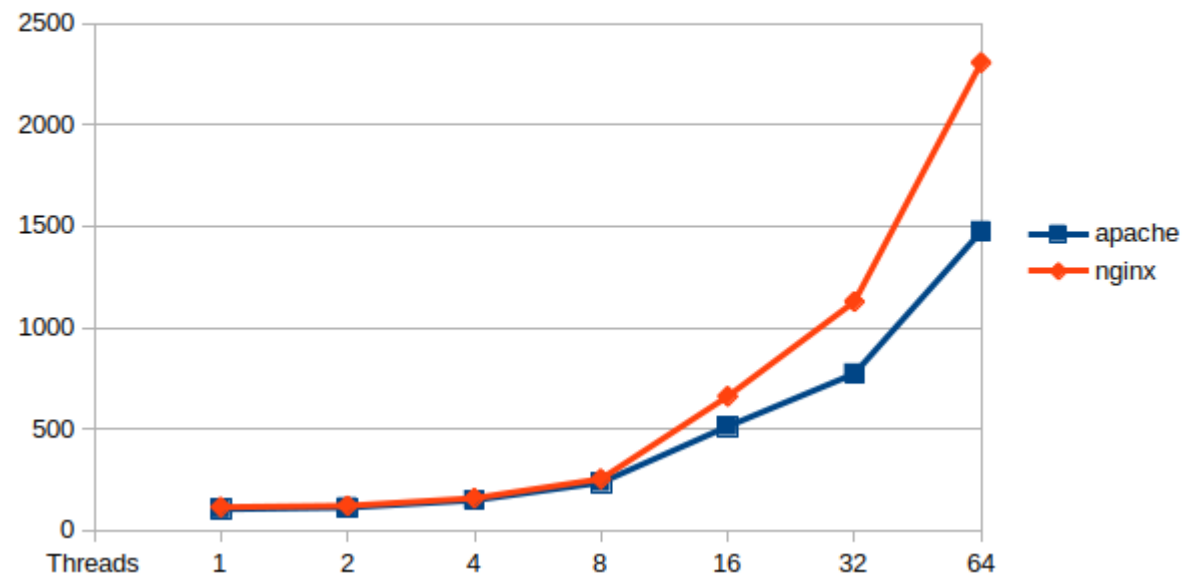
Apache mod_fcgid: 89s

Nginx fcgi: 97 s

Maximum request time (ms)



Average request time (ms)



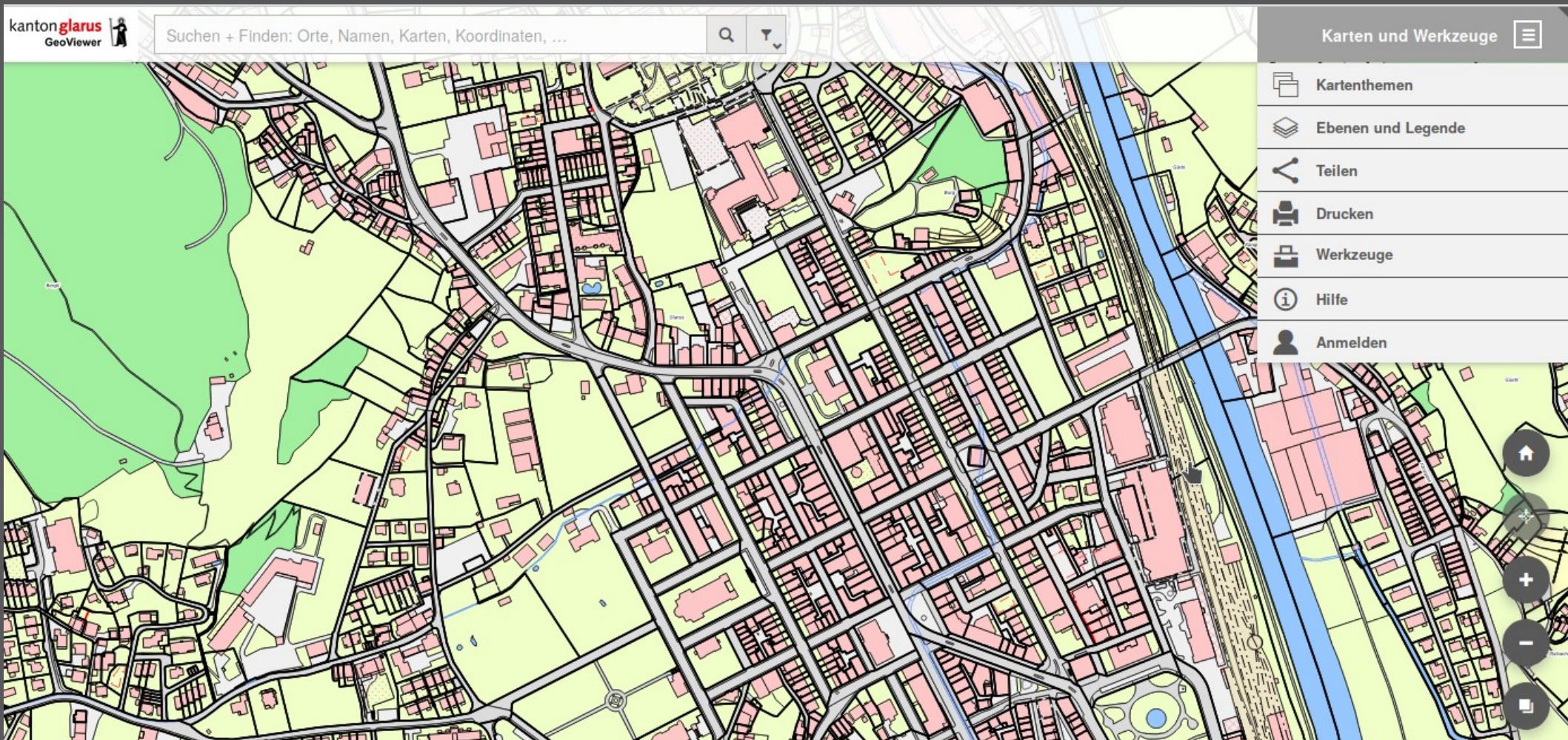


Web clients

- QGIS Web Client 2 (QWC2), ReactJS based
- GisQuick web client, VueJS based
- Lizmap web client, web components



OGIS Web Client 2 (OWC2)





Lizmap web client



Points d'intérêts dans le bassin versant du lac Léman

Cartes

Straße, Stadt



Verbinden

Rechteck für Druckauswahl platzieren

Drucken

Template

Maßstab

DPI

Portrait A4

50.000

100

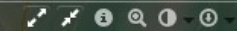
Drucken

Legende

Legende

Point of interests (zoom in to see)

- ☐ Viewpoints
- ☒ Attractions
- ☐ Camp sites
- ☐ Hotels
- ☒ Lieux
- ☒ Fond de carte



10 km
5 mi

1 : 500.000



GisQuick web client

Solothurn - Mozilla Firefox

File Edit View Chronik Lesezeichen Extras Hilfe

Solothurn

https://localhost/?PROJECT=mhugent%2Fsolothurn%2Fsolothurn

Suchen

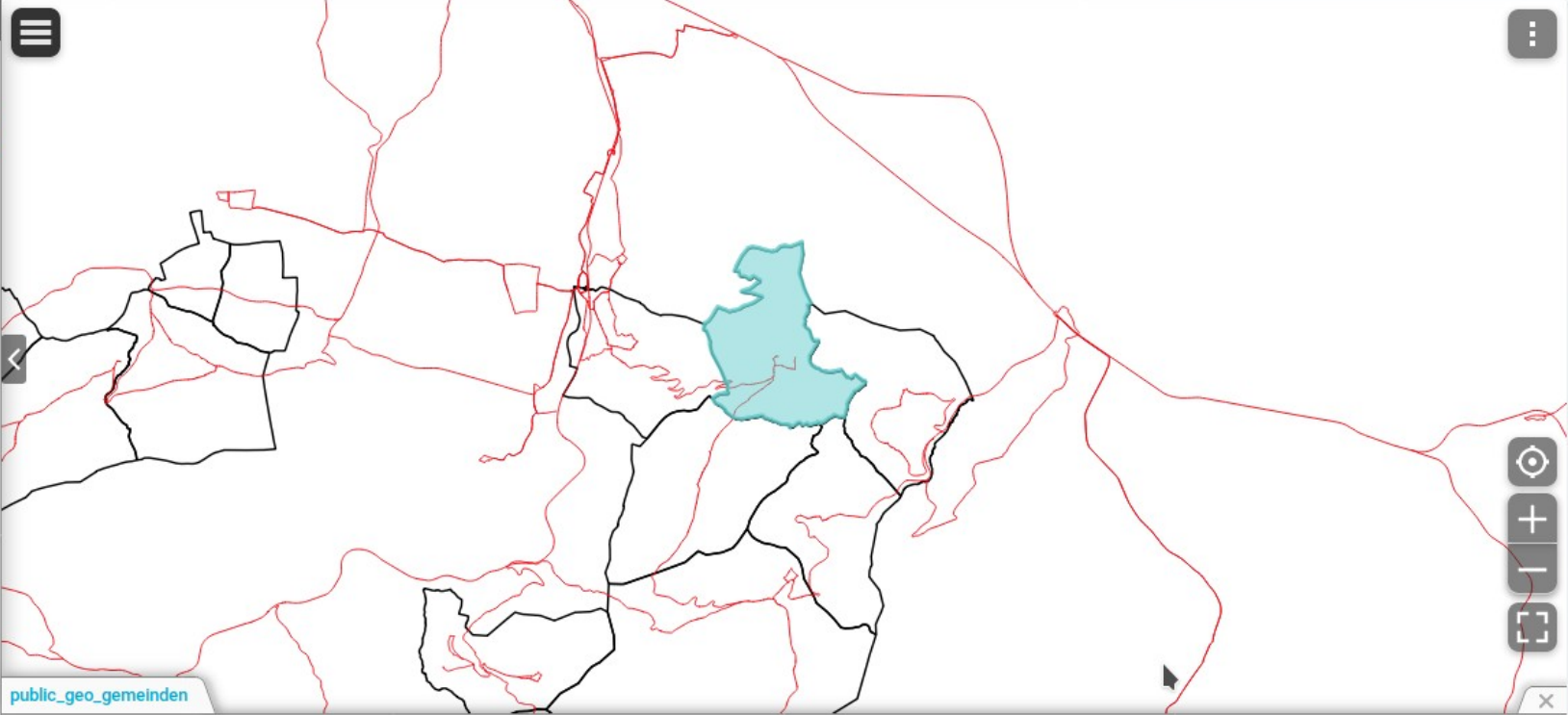
CONTENT

Base Layers Overlay Layers Legend

Topics Layers

☒ public_avt_oev_netz

☒ public_geo_gemeinden



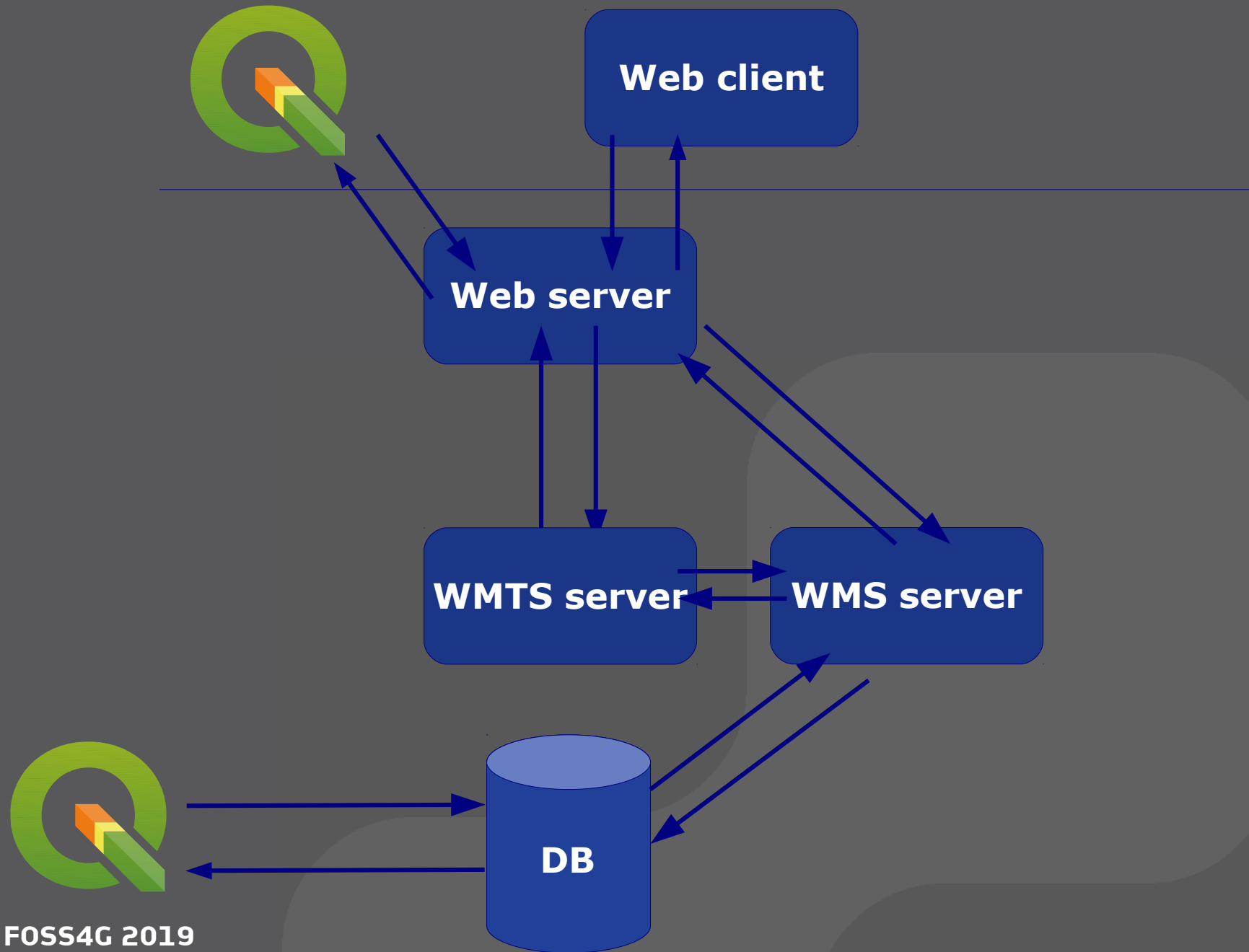
public_geo_gemeinden

OGC_FID	NAME	GEM_BFS	GMDE_NAME	GMDE_NR
Operator	Operator	Operator	Operator	Operator
727	Kammersrohr	2549	Kammersrohr	2549
728	Niedergösgen	2495	Niedergösgen	2495
729	Härkingen	2402	Härkingen	2402
730	Gempen	2474	Gempen	2474
676	Egerkingen	2401	Egerkingen	2401

Limit: 50 Rows per page: 5 16 - 20 of 50 Filter to visible area REFRESH



Tilecache (WMTS)





Tilecache (WMTS)

- QGIS Server WMTS service
- Mapcache
- Mapproxy
- Generic http cash (e.g. Varnish)



Web-GIS platforms

- Provide user management, access control, publishing maps
- Hosted solution: QGIS Cloud (www.qgiscloud.com)
- GisQuick (www.gisquick.org)



- Hosted service by Sourcepole
- Provides hosted PostGIS DB, Web/Mobile map
- Upload data and publish project with QGIS Cloud plugin
- Free account for private (non-commercial) use up to 50MB database usage
- Protected maps and up to 500MB DB space with the pro account
- Additional DB space can be rented
- Coming soon: web based editing (pro account)

QGIS cloud: get started on www.qgiscloud.com

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Use QGIS Cloud for free and start right away!

[Sign Up](#)

QGIS Cloud Hosting

QGIS Cloud is your powerful Web-GIS platform for publishing maps, data and services on the Internet. Create and edit professional maps with all the capabilities from QGIS. With only a few short mouse-clicks you can share your work on qgiscloud.com with the public.

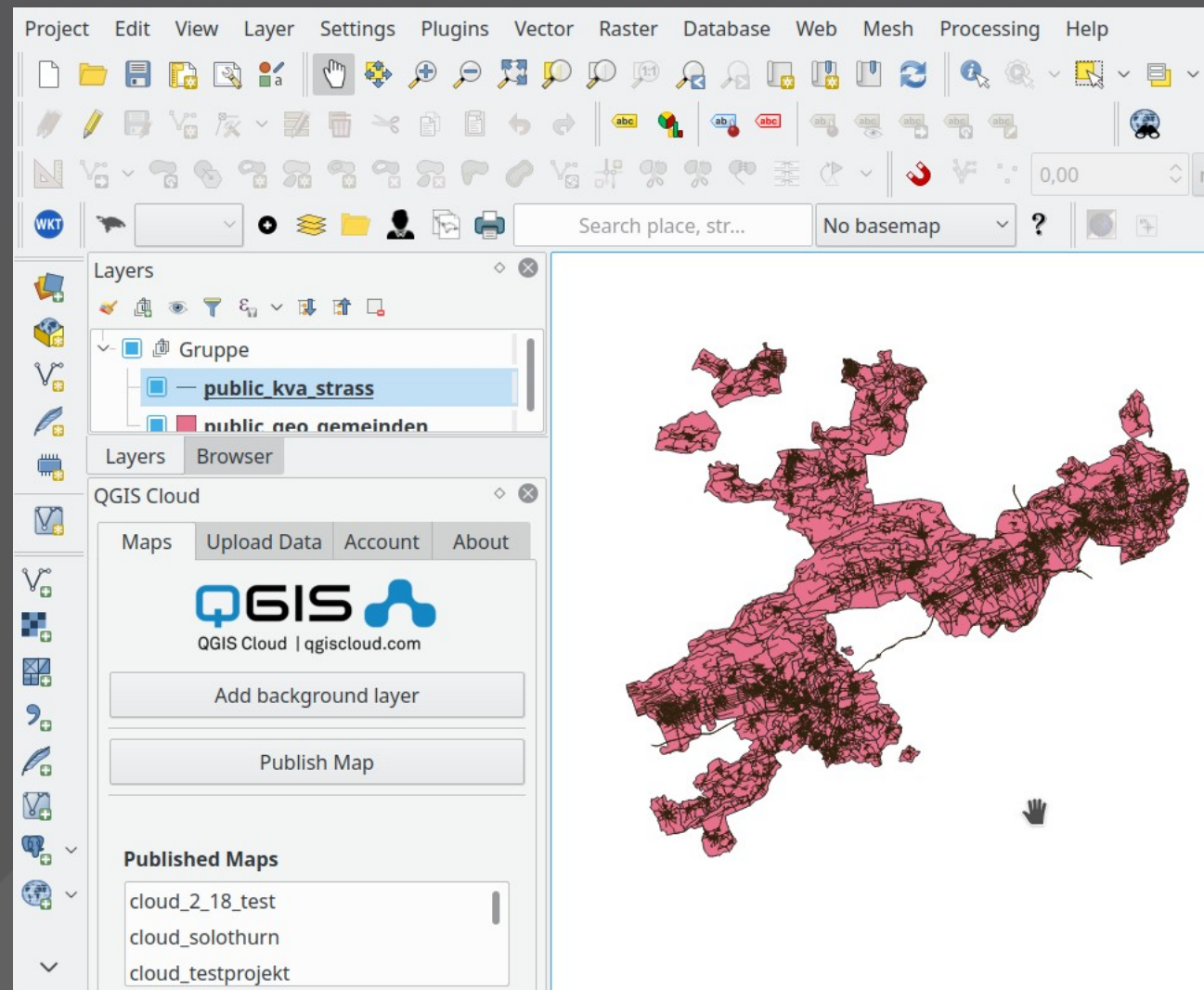
Recent Maps

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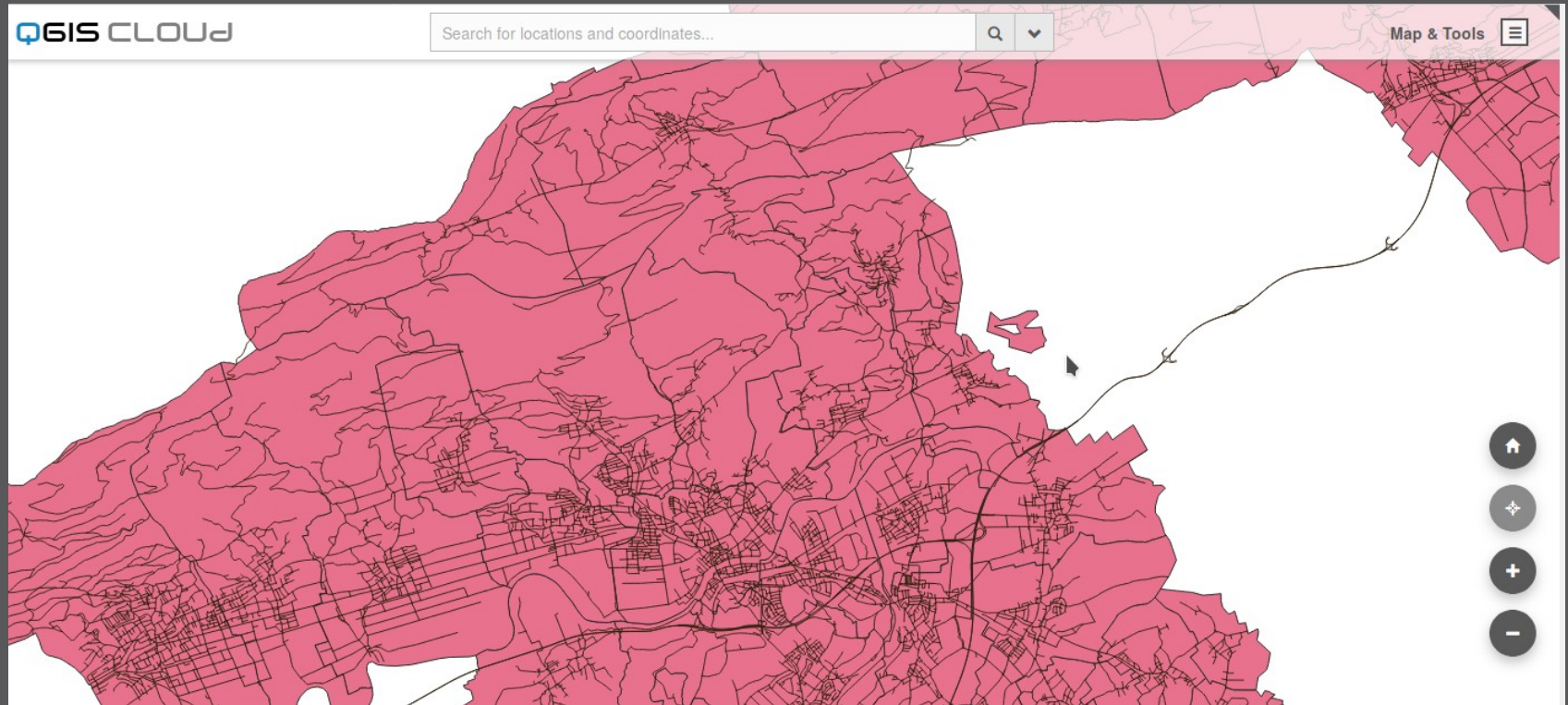
QGIS Cloud: upload data, publish project

- Use qgiscloud plugin to upload data and to publish project





OGIS cloud: Web map / mobile map





➤ Django + QGIS server + nginx

The screenshot displays the GisQuick web application interface. On the left, a 'MENU' sidebar lists options: My Projects, Upload Project, My account, Help, and Logout. The main content area shows a table of projects with columns: Title, Authentication, Publication time, Expiration, Cache, and WMS service. The first row, 'Solothurn', is selected. Below the table, a map viewer is embedded, showing a map of Solothurn with red overlay lines. The map viewer includes a 'CONTENT' sidebar with 'Base Layers', 'Overlay Layers', and 'Legend' tabs. The 'Overlay Layers' tab is active, showing a 'Topics' section with a 'Default topic' dropdown. The map viewer also features a scale bar (2 km), a scale indicator (Scale: 1: 100000), a coordinate system (EPSG:21781), and a coordinate display (Coordinates:).

Title	Authentication	Publication time	Expiration	Cache	WMS service
Solothurn	all	Sun Aug 25 09:50:35 2019		✓	link



Summary

- **Desktop GIS is still very important**
- **Collaborating with other users needs a geodata infrastructure (GDI)**
- **Creating a lean GDI with QGIS and other OS tools is not hard**
- **Hosted solution exists with QGIS Cloud**



From Desktop to SDI with QGIS

Thank you



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