
GeoServer


GeoStyler


MapProxy

Optimized publishing of map and dataservices

with GeoServer, GeoStyler and MapProxy

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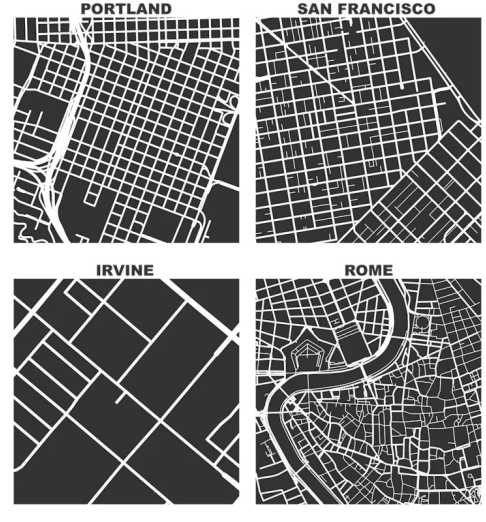
Agenda – Which road do we take?

- About …
  - … the authors and presenters
  - … this talk
- Components
- Optimization
  - Style
  - Performance
- Summary & Example



About … the authors and presenters

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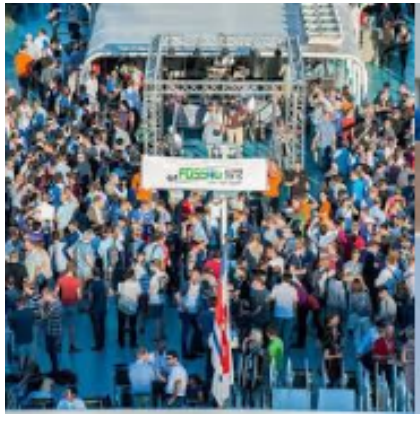
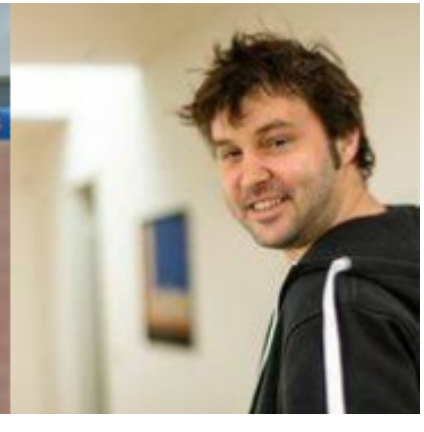
- Shareholder terrestris
- Chair of global FOSS4G 2016 in Bonn
- OSGeo Board member
- Consultant & agile Coach





Marc Jansen

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- General Manager terrestris & mundialis
- OSGeo charter member
- PSC / Core developer of
  - OpenLayers & GeoExt
  - Contributor to GeoStyler, react-geo & other
- ...Developer / technical background

terrestris

- www.terrestris.de
- OpenSource GIS service provider, located in Bonn, Germany
- Planning, Development & Projects
- Consulting, Support & Trainees
- providing popular free OSM-WMS (worldwide)

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... about this talk

Why this talk?

Why this talk?

This talk is for users, not so much for developers

- Thank god: Creation of a simple WMS with Open Source tools is easy today, but ... 🙏
  - Styling is *still* a Topic
  - Performance is ***always*** a Topic
- Setting up and well designed and fast WMS services arestill a Topic

Is this the one and only solution?

No! Of course not!

- There are many FOSS ways of achieving similar results
- This talk wants to share our experience and provide an insight into how we often solve problems

http://densiaamelia.blogspot.com/2014/01/there-are-many-ways-to-go-to-rome-there.html

Scan the title for buzzw ... components

Optimized publishing of map and dataservices with

GeoServer

- Java-based, OGC compliant Server for Geodata
- Well documented and powerful API
- Widely used in GIS world
- Integrated in many WebGIS frameworks (e.g. SHOGun)

geoserver.org

geoserver

GeoServer

Input Files

- Vector files (e.g. Shape)
- RasterData (e.g. GeoTIFF)
- DataBase (e.g. PostGIS)
- Other Servers (e.g. WMS, WFS)

GeoServer

Output Services

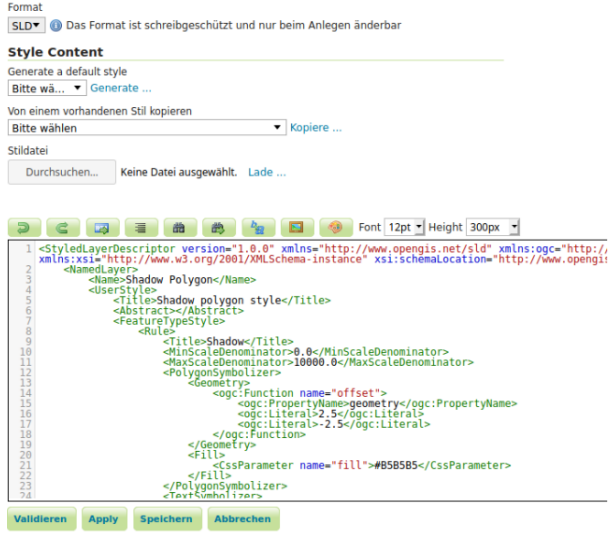
- WebMapService (WMS)
  - Styling: StyledLayerDescriptor (SLD) and others
- WebFeature Service (WFS)
- WebCoverageService (WCS)
- WebProcessingService (WPS)

~~Optimized~~ publishing of map and dataservices :

Okay, you‘re done

GeoServer – Styling Maps

- WebMapService (WMS)
  - Styling: StyledLayerDescriptor (SLD) et al.



GeoStyler

- Ready-to-use map styling library
- Read & write of various style formats
- Read of various data formats
- Development & integration of own parsers
- Support for raster data
- => Later today dedicated talk by J. Suleiman

geostyler.org

geostyler

GeoStyler

Input Features

- Filters & Classifications
- Scale Ranges
- Calculation of overlaps
- StandAlone (UI) / Integrated

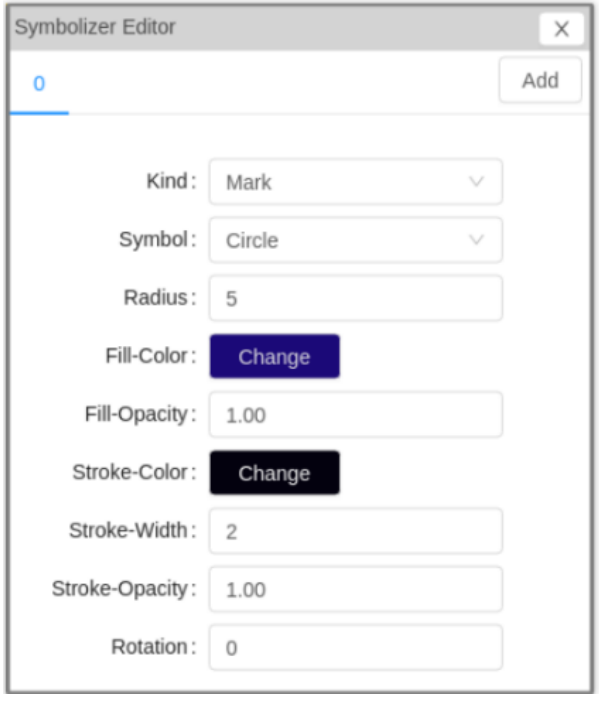
GeoStyler

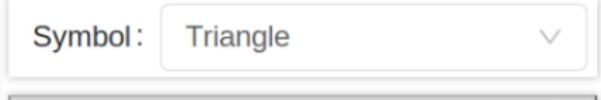
Read/Write formats

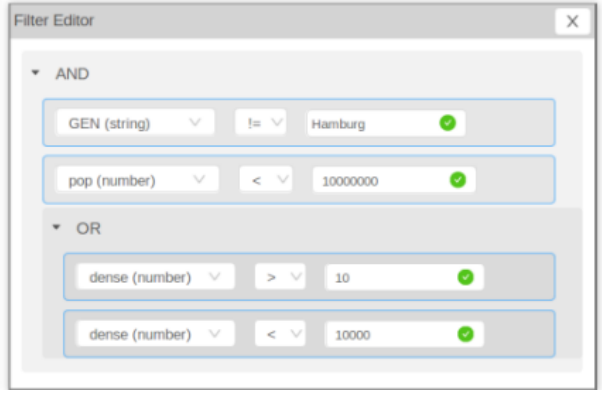
- Styled Layer Descriptor (SLD)
- QGIS Style
- OpenLayers Style
- MapBox Style
- Mapserver Mapfiles (=> talk by J. Teuscher)
- … others planned

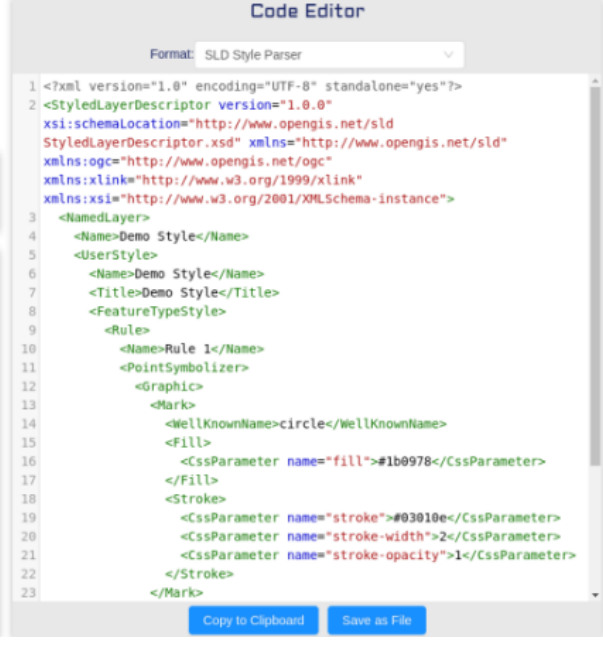
GeoStyler

User Interface Elements (UI)



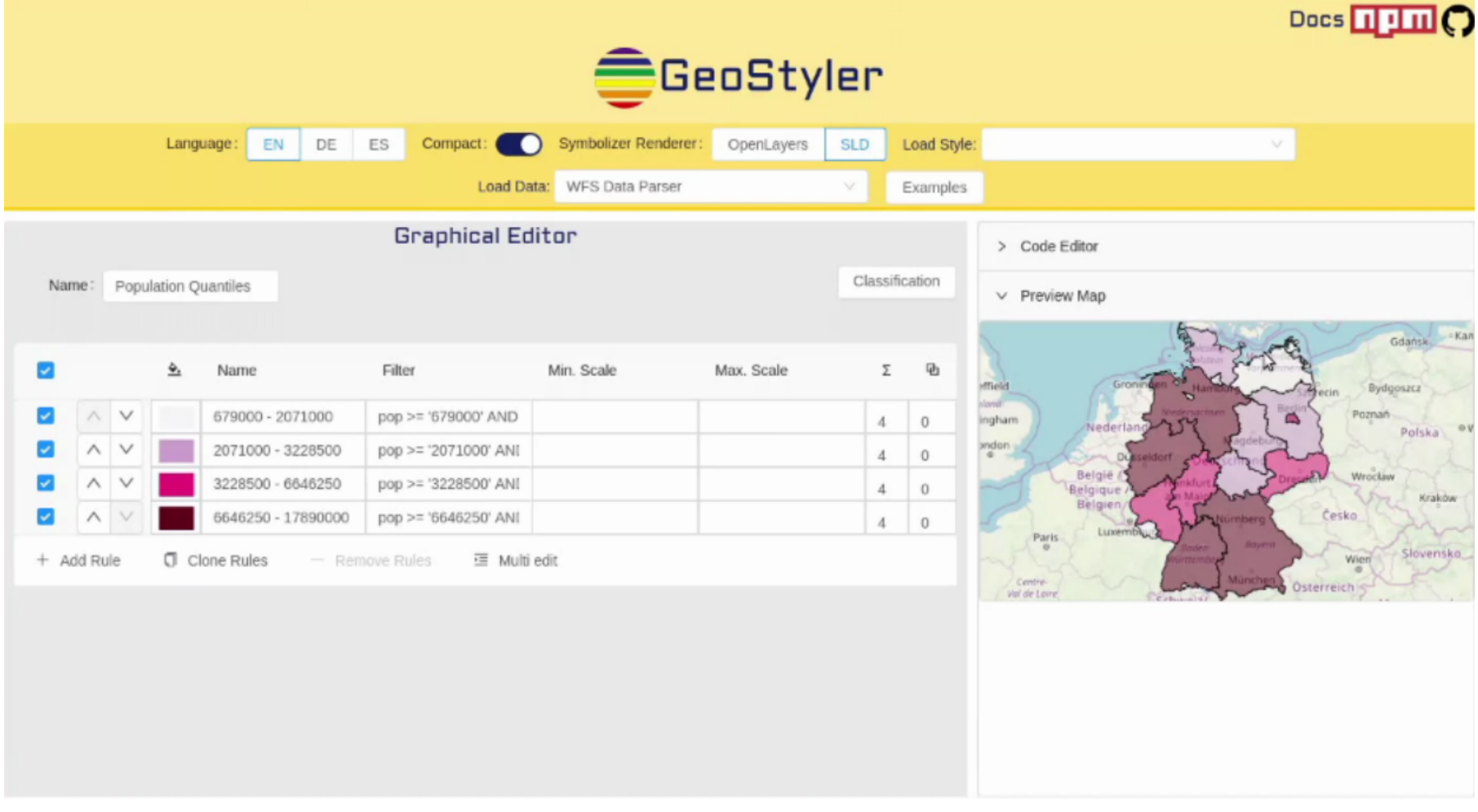






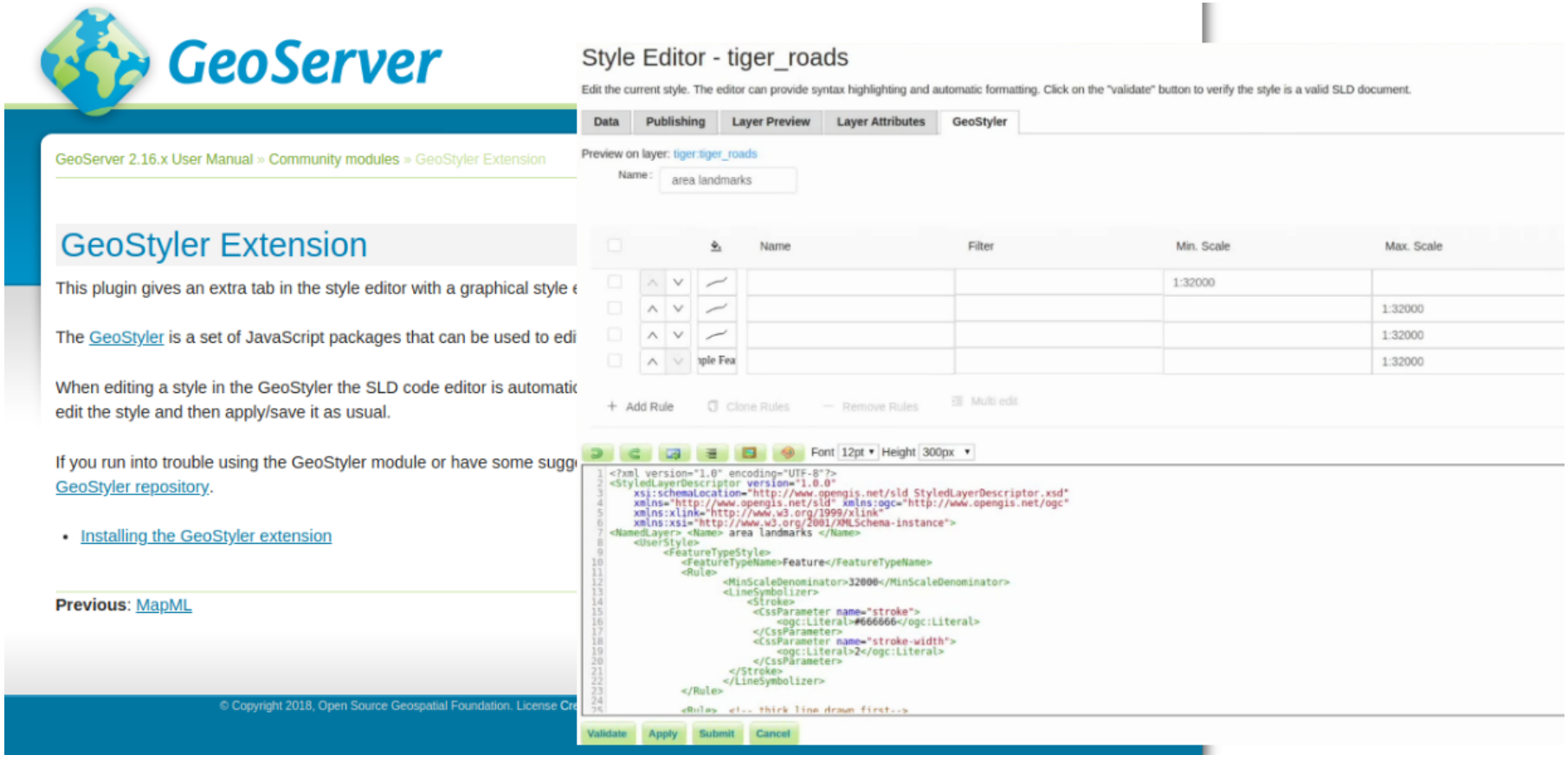
GeoStyler

Standalone



GeoStyler

GeoServer Plug In



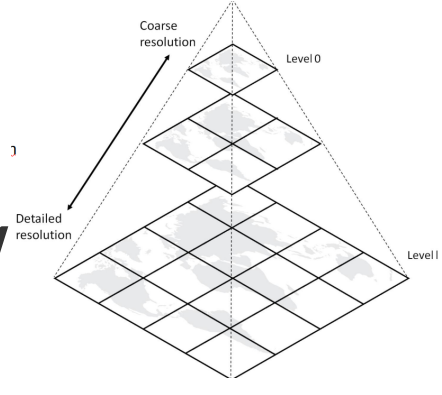
~~Optimized~~ publishing of map and dataservices :

But now, you‘re done

Caching Maps

Clever if ...

- Data doesn‘t change too often
- Many requests expected
- Many layers (e.g. grouped layers
- Performance problems
- Restricted hardware capabilities of (W



GeoWebCache

it's integrated in GeoServer

- Java-based tiling server (caching application)
  - Sources: WMS
  - Interfaces: WMS-C, WMTS, TMS, Google Maps KML, Virtual Earth
- Well documented and powerful API
- Integrated in GeoServer

geowebcache.org

geowebache

MapProxy

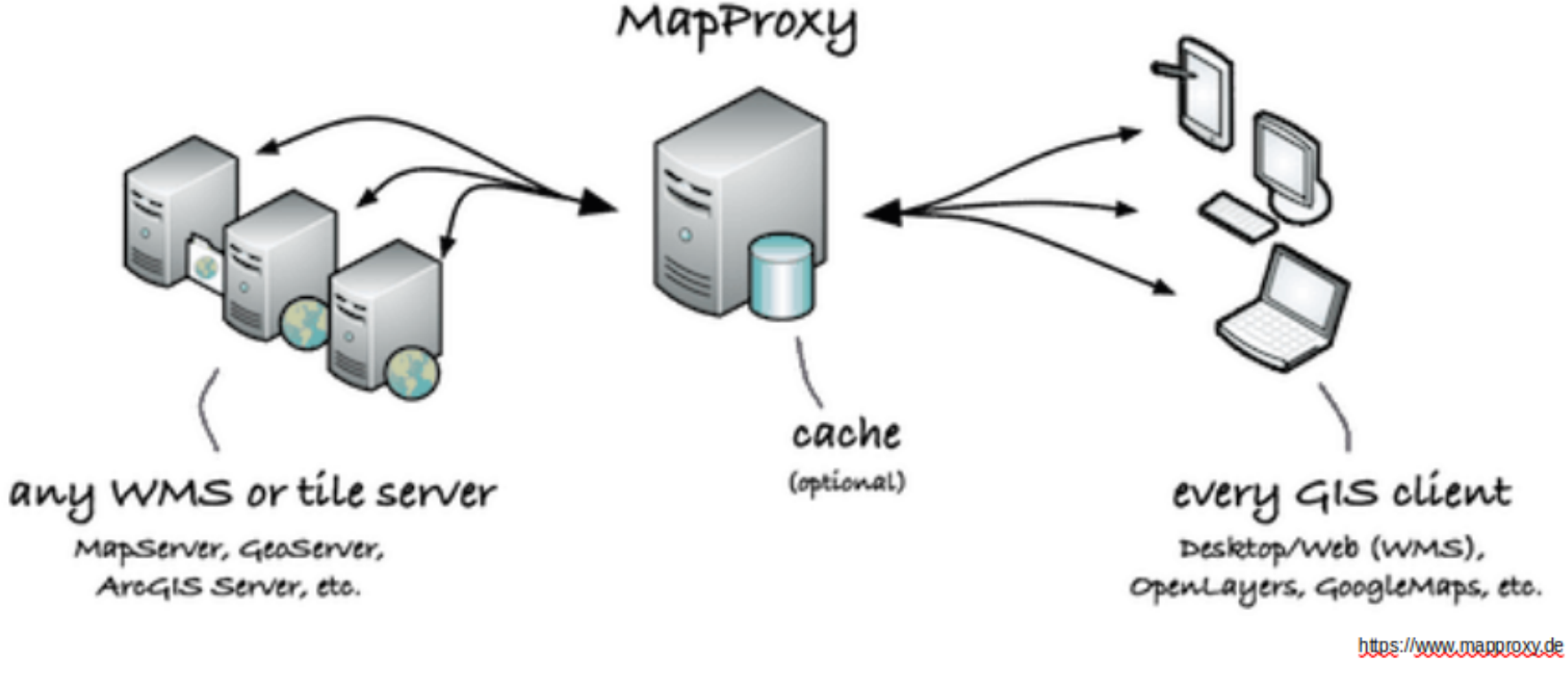
Standalone

- Proxy for geospatial data (Caching engine)
  - Sources: WMS, WMTS, Mapserver, Mapnik, Tilecache GoogleMaps, BingMaps, ArcGIS REST
  - Interfaces: WMS-C, TMS, WMTS, KML SuperOverlays
- Well documented and powerful API

mapproxy.org

mapproxy

MapProxy



https://www.mapproxy.de

MapProxy

cool functions of MapProxy

- MapProxy is capable to
  - Auto-generate grey version of cache
  - Re-project tiles (= one cache for several EPSG‘s)
  - Interpolate tiles between cached zoom levels
  - Read a lot of input data
  - Optimized storage
  - Security for layers or regions

GeoWebCache – Mapproxy

the attempt of a comparison I

- GeoWebCache is built-in GeoServer & Standalone
- GeoWebCache: one cache per EPSG-code – MapProxy: same cache for all, if wanted

GeoWebCache – Mapproxy

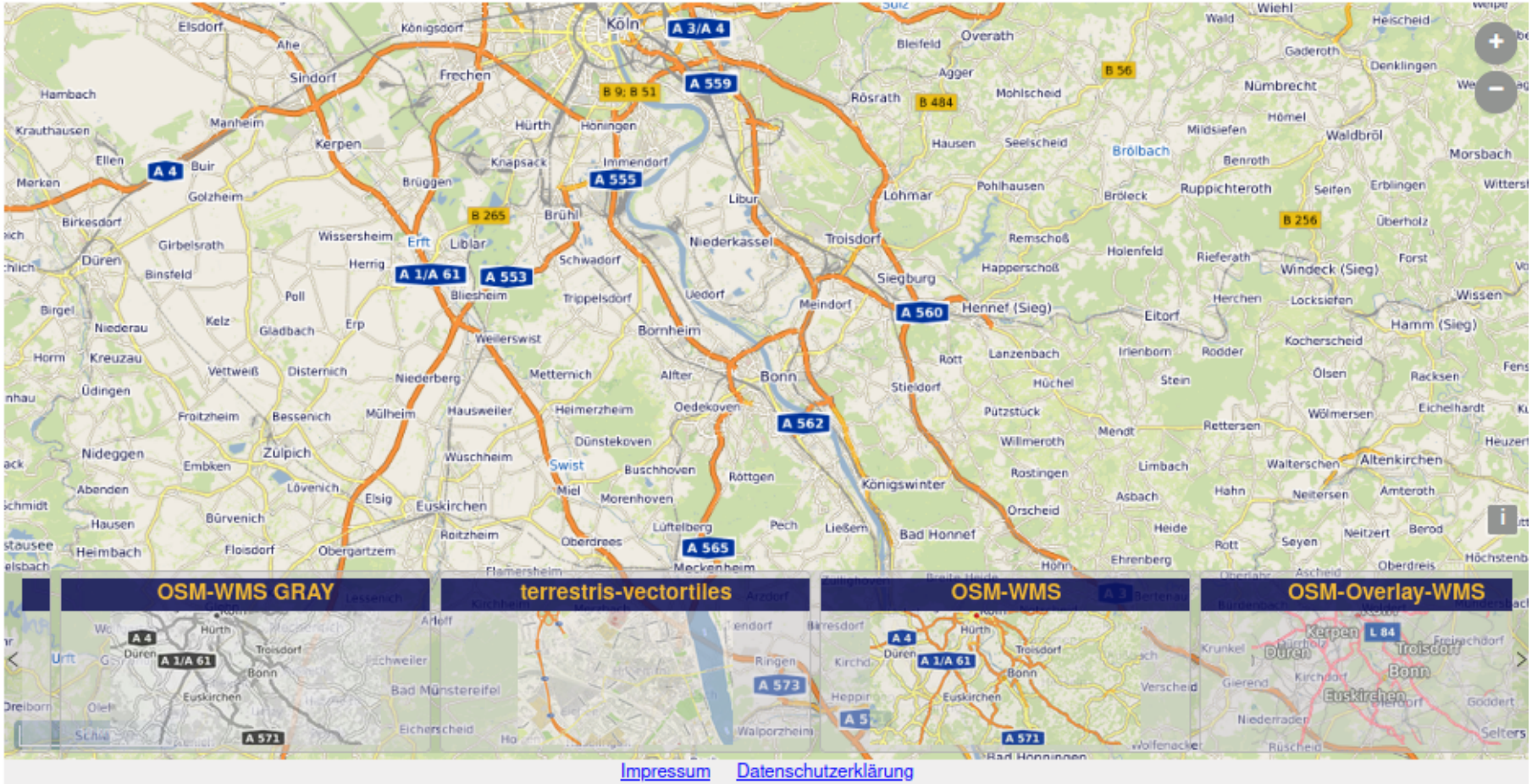
the attempt of a comparison II

- MapProxy is able to replace the service behind by cache-interpolation
  - MapProxy interpolates tiles if request is between zoom levels
  - GeoWebCache sends request to GeoServer

- GeoWebCache WMS needs parameter “tiled=true“ on WMS-request

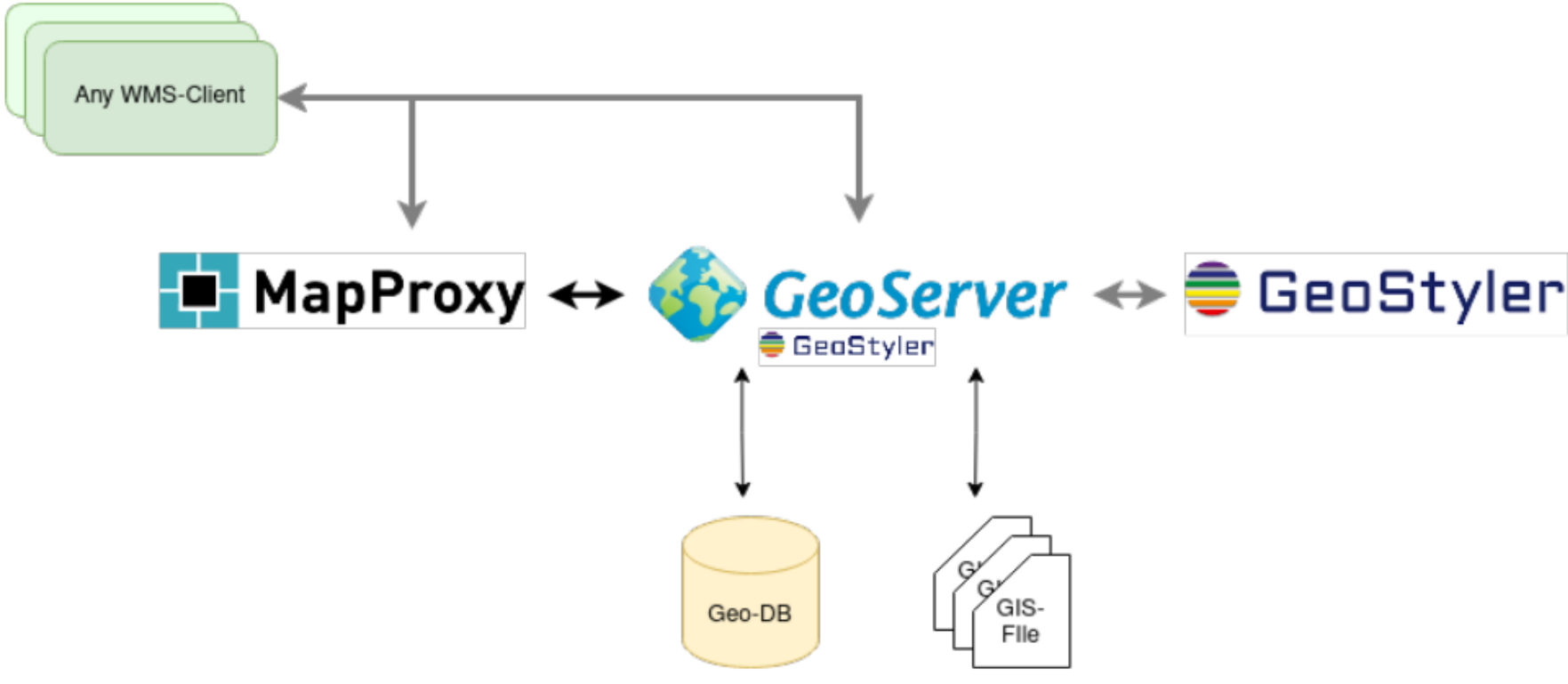
One example

Free to use world-wide OSM WMS: ows.terrestris.de



Architecture

Optimized publishing of map and dataservices



Optimized publishing of map and dataservices :

And now, you‘re done!

Summary

It's cool, it's open!

- Open Source is combinable!
- There is often more than one component to reach your goal
- The presented architecture has already proven its suitability for setting up good-looking, fast and robust MapServices, as the example OpenStreetMap WMS shows

Imprint

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License

terrestris.github.io/foss4g2021/geostyler
PDF-Version, git repository