TinyOWS - der schlanke WFS

Pirmin Kalberer
Sourcepole AG, Pfäffikon SZ
www.sourcepole.ch

Über Sourcepole

- **QGIS**
  - Core dev. & Project Steering Commitee
  - Printing, QGIS Server, div Plugins, u.v.m.
- **OGR / GDAL**
  - Interlis-Treiber
  - Schema Support für PostGIS-Treiber
- **Openlayers / MapFish**
  - Mapfish Committer (Ruby on Rails Plugin)
  - Openlayers contributions
- **UMN Mapserver**
  - Ruby Bindings, KML- und SDE Features

TinyOWS?

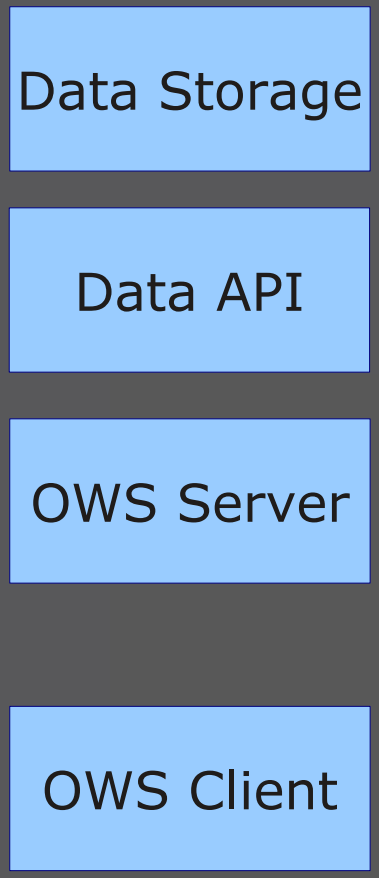
Was ist TinyOWS?

- Hochperformanter Transaktionaler Web Feature Service (WFS-T)
- Open Source Software (MIT Licence)
- OGC orientiert, strikte Standard Implementation (CITE unit test basiert)
- CGI oder FAST CGI application (ANSI C)

Wieso TinyOWS ?

- Weil MapServer keinen WFS-T hatte
- Keine Installation und Wartung von Tomcat nötig (GeoServer)
- Da der WFS-T Standard nahe an den Konzepten von Geodatenbanken ist, eignet sich PostGIS sehr gut
- Weil WFS Datenaustausch hohe Performance benötigt

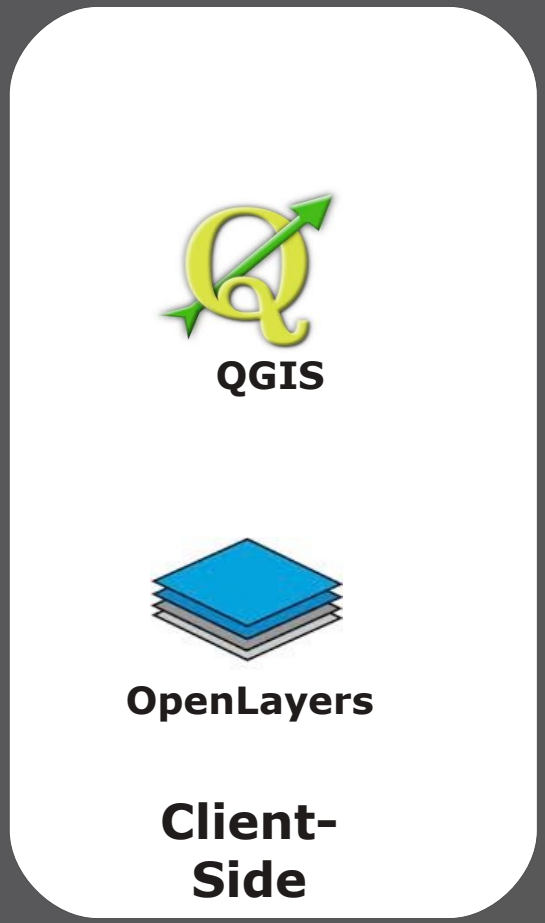
TinyOWS: Der schlanke Stack

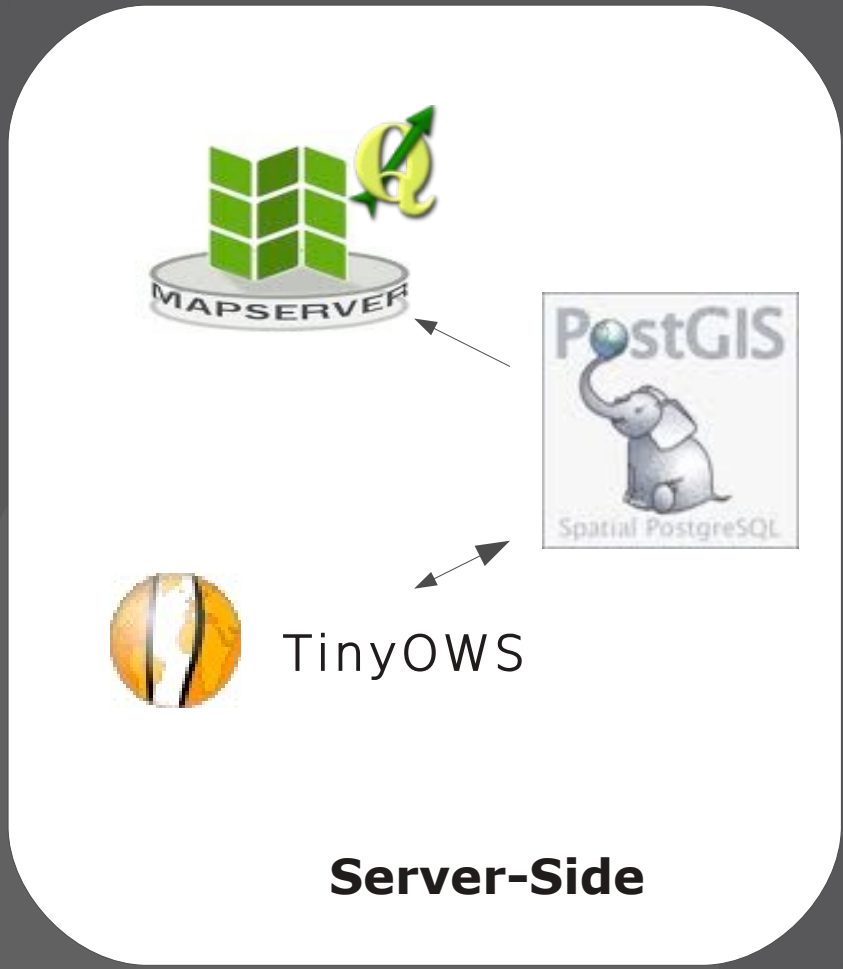


Common OWS Architektur Stack

TinyOWS Architektur Stack

TinyOWS FOSS4G Ökosystem





TinyOWS-Beiträge an PostGIS

- **ST_AsGeoJSON** *(PostGIS 1.3.5)*
  - GeoJSON Export-Funktion
- **ST_AsGML** *(PostGIS 1.4 to 2.0)*
  - Precision handling
  - Lat/Lon GML 3 axis order support
  - OGC urn long format option (urn:ogc:def:crs:EPSG::4326)
- **ST_GeomFromGML** *(PostGIS 1.5)*
  - GML parser
  - Support: GML 2.1.2, GML 3.1.1 SF-2, GML 3.2.1 namespace

Konsequenz : TinyOWS benötigt PostGIS 1.5

MapServer Integration

Was ändert sich?

- TinyOWS benutzt die MapServer Entwickluns-Infrastruktur (Mailing-list, Website, SVN, Trac ticket, RFC...)
- TinyOWS heisst neu 'MapServer TinyOWS'
- MapServer PSC ist jetzt auch für die Organisation von TinyOWS zuständig

Was ändert sich nicht?

- TinyOWS ist weiterhin als Standalone Applikation erhältlich
- Olivier Courtin bleibt Projektleiter

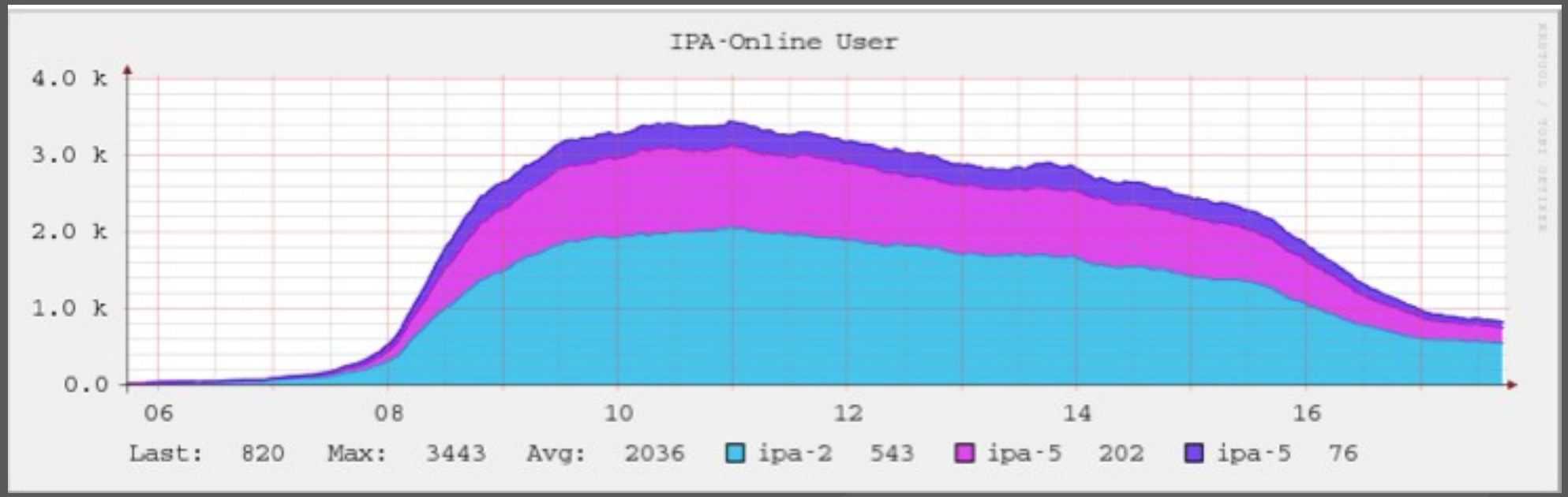
Was ist neu?

- MapServer Suite package enthält beide Applikationen

TinyOWS in real world

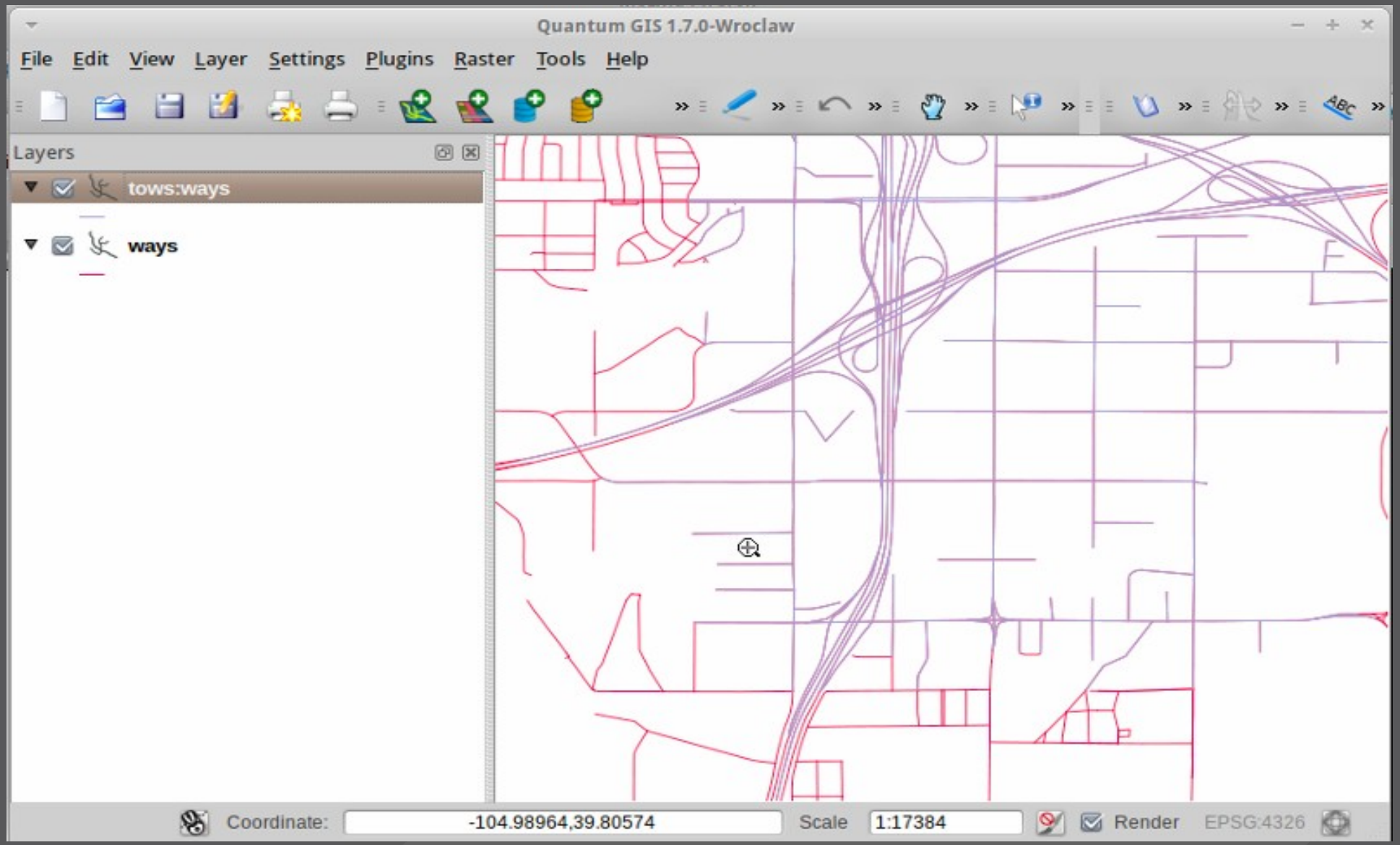
Romanian Paying Agency for Agriculture (APIA)
http://www.apia.org.ro

Zugang für Landwirte (~1'100'000) zu EU Beiträgen (> 2 Billonen USD/Jahr) mittels Digitalisierung von Parzellen (~6.500.000) (bis zu 3'400 gleichzeitige User)



CO2 und Geld sparen - dank schlanker Software ;-)

TinyOWS and QGIS auf OSGeo Live



Performance Überlegungen

GetFeature Requests Benchmark

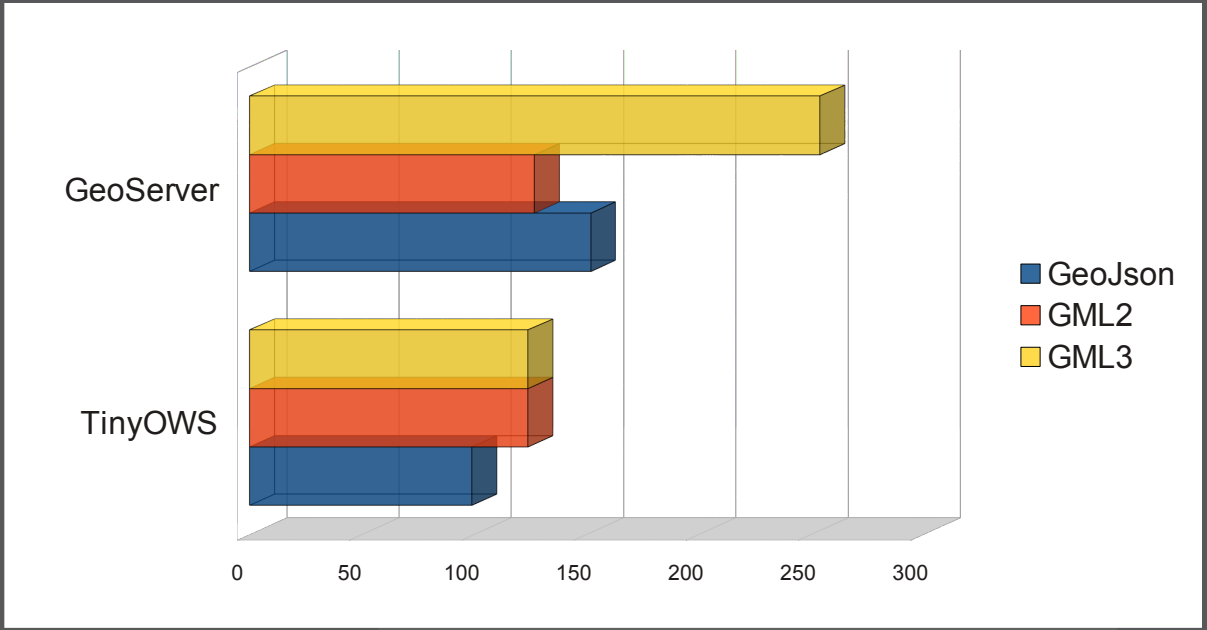
5000 WFS 1.1 GetFeature requests (synthetisch)

(2500 Requests mit verschiedenen BBOX Koordinaten,

2500 Requests auf unterschiedliche IDs)

Total time elapsed in seconds :

	GML 3	GML 2	GeoJson
TinyOWS	124	124	99
GeoServer	254	127	152



(Core 2 Duo 2.33GHz – 2GB RAM)

Vollständige Instruktionen:
http://tinyows.org/trac/wiki/ComparativeBench

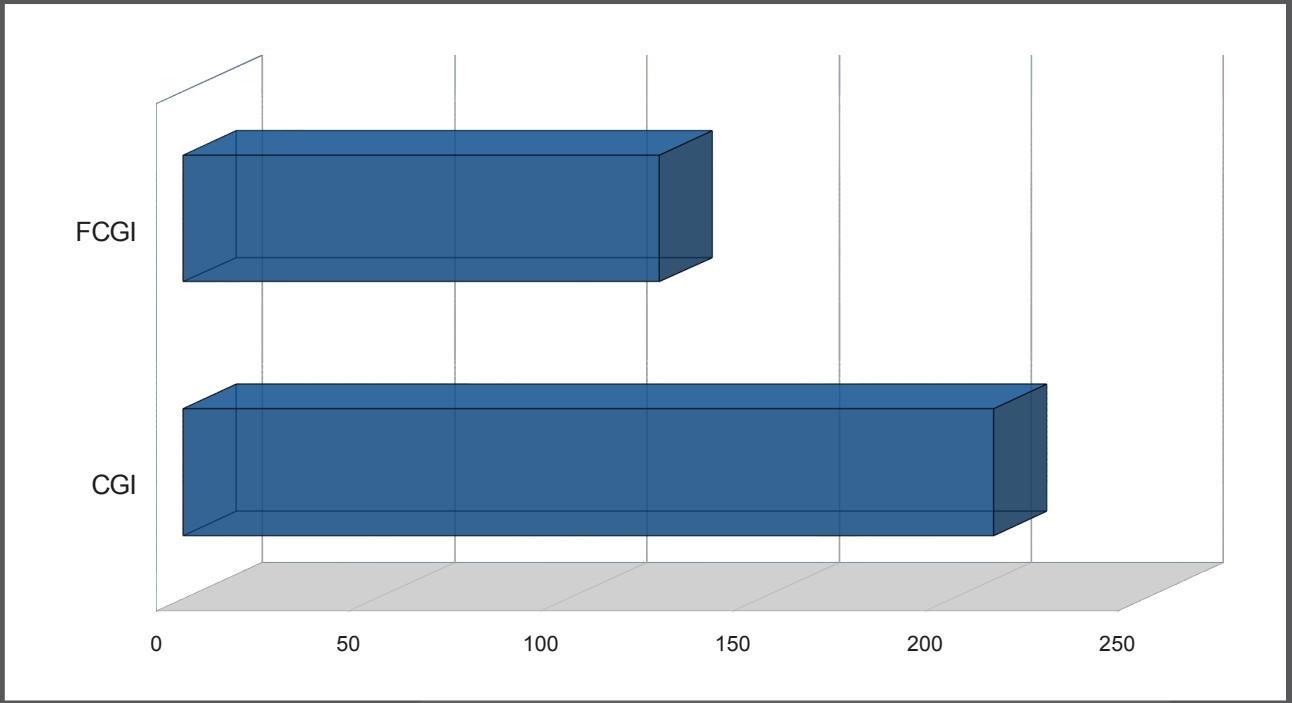
Fast CGI mode (seit 0.9)

Ermöglicht persistente Layer über mehrere Requests:

- PostgreSQL Connection
- Layer-Struktur wird in Speicher gehalten

5000 GetFeature requests

TinyOWS CGI	211 s
TinyOWS FCGI	124 s



Nächster Schritt Apache Module Implementation?

XSD Schema caching (seit 1.0)

In WFS Transaktions Operation

XML user Request wird gegen ein XSD Schema geprüft

XSD Schema wird neu nur einmal erzeugt

(Fast-CGI Modus)

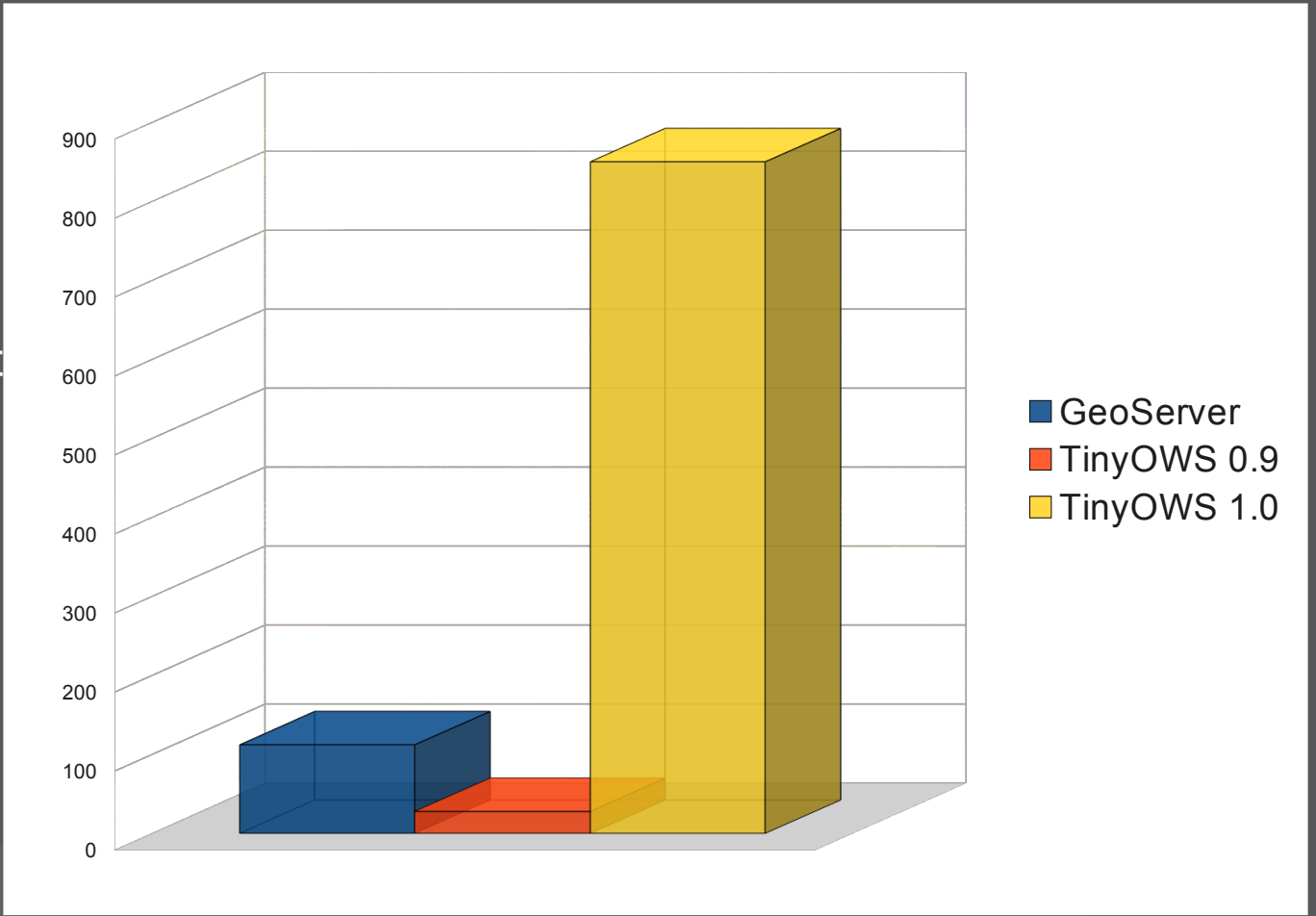
Performance-Faktor : **40**

Single basic feature to insert

(500 requests / concurency 20)

Requests per second:

GeoServer	125
TinyOWS 0.9	28
TinyOWS 1.0	807



Performance Überlegungen

- CPU ist das “Bottleneck” des WFS servers
- Eine Verteilung der Gzip Kompression und der WFS Verarbeitung auf zwei CPU's oder Rechner wäre interessant
- PostgreSQL/PostGIS ist nicht stark ausgelastet (eine Instanz könnte mehrere WFS bedienen)
- Nächster Schritt: Implementation als Apache Modul

OGC CITE Tests

OGC Compliance and Interoperability Testing Initiative (CITE)

Open Geospatial Consortium, Inc.

OGC CITE provides a unit tests platform

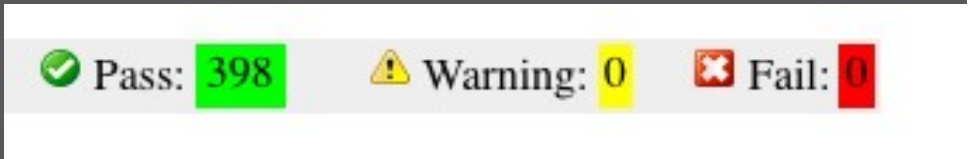
Aim is to help developpers to improve real world interoperability

About ~1000 units test available for both WFS 1.1.0 and WFS 1.0.0

http://cite.opengeospatial.org/te2/

OGC CITE Tests

WFS 1.0.0 – Transaction – SF-0 Tests: r3



WFS 1.1.0 – Transaction – SF-0 Tests: r4

Note: All CITE unit tests are also 'Valgrinded' to prevent memory leak

Full OGC CITE compliancy:
a real achievement of 1.0 release !

Neue Features

MapFile parser (seit 1.0)

Ability to have a single MapFile to configure both MapServer and TinyOWS

All configure options from TinyOWS are mapped to MapFile syntax

```
NAME 'France'
CONNECTIONTYPE postgis
CONNECTION "host=127.0.0.1 user=postgres password=postgres dbname=tinyows_demo
METADATA
        'wfs_title' 'France'
        'wfs_namespace_prefix' 'tows'
        'wfs_namespace_uri' 'www.tows.com'
        'wfs_srs' 'EPSG:27582'
        'tinyows_table'  'france'
        'tinyows_writable' '1'
        'tinyows_retrievable' '1'
END
DUMP TRUE
```

Known limitations:

- Only PostGIS CONNECTIONTYPE are handled
- Each CONNECTION string value in LAYER elements must be the same.
- MapFile PROJECTION content is not parsed, so use explicit wfs_srs
- MapFile FILTER is not parsed.

Weitere Verbesserungen

- GeoJson output format (since 0.9)
- Security Bug Fixes (since 1.0.0rc3)
- PostgreSQL VIEW storage support
- Encoding support
- Log Handling
- Handle PostGIS Geography
- Improve GetCapabilities performance

TinyOWS 1.0 Contributors

- Olivier Courtin — Main developper
- Jukka Rahkonen — Interoperability and lat/lon issues
- Boris Leukert — Performance issues
- Even Rouault — SQL Injection vulnerability issues
- Carlos Ruiz — Encoding support patch
- Nicklas Aven — Performance issues
- Assefa Yewondwossen — MS4W packaging
- Pirmin Kalberer — OSGEO Live DVD

And, for next release, what about you ?

MapServer TinyOWS WishList

- Enhance coverage of units tests (not only CITE ones)
- Add new export formats: Shapefile, KML, GeoRSS...
- Apache module support
- OGC Application Schema support
- OGC REST implementation
- QGIS config file parser
- Oracle Spatial (and/or SpatiaLite) support
- WFS 2.0.0 and INSPIRE compliancy
- OGC SOS-T support

Conclusions

TinyOWS was already a really good WFS technical choice

It's more true than ever with 1.0.0 release.

Next step is to (really) enlarge the user community

- TinyOWS are open to new contributors and patches
- TinyOWS (Oslandia) is open for funding

Referenzen

- http://mapserver.org/trunk/tinyows/
- http://tinyows.org/
- http://live.osgeo.org/de/overview/tinyows_overview.html
- Dank an Olivier Courtin, Oslandia

Danke!

Pirmin Kalberer
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