

GIS.lab

rapid GIS office deployment

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Introduction

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- ▶ Open Source software

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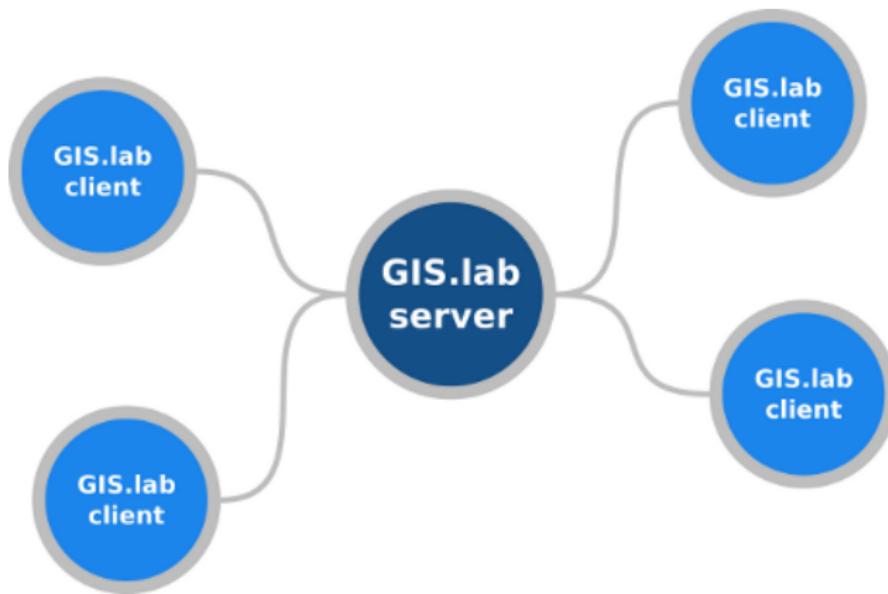
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- ▶ very cheap
- ▶ small office server must fit in a pocket

GIS.lab architecture

- ▶ automatically installed GIS.lab server
- ▶ network booting, plug-and-play GIS.lab client machines



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- ▶ GIS project publishing on web

Development

Versions

- ▶ currently preparing for 0.4 release
- ▶ general production release 1.0 in end of 2014

Authors

- ▶ Marcel Dancák
- ▶ Ivan Minčík

Sponsor

- ▶ GISTA s.r.o.

Installation in LAN

Requirements

Server

- ▶ single machine with Linux, Mac OS or Windows installed

Client

- ▶ multiple machines with any **or** no OS installed

Hard way

Install dependencies

- ▶ install VirtualBox, Vagrant, Git (optional)

Install GIS.lab

- ▶ \$ vagrant box add precise32-canonical http:// ...
- ▶ download installation ZIP **or** \$ git clone ...
- ▶ \$ vagrant up

25 minutes

0 EUR

Easy way - GIS.lab Unit

Plug-and-play

5 minutes
450 EUR

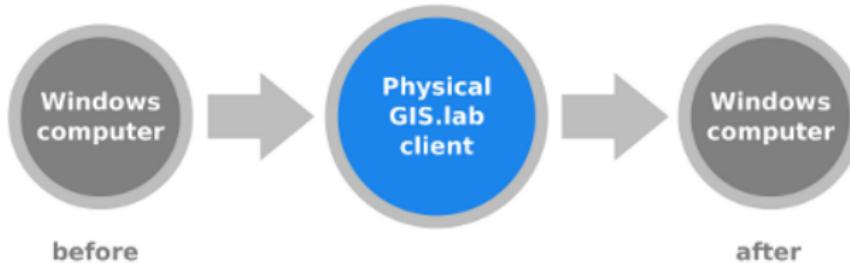
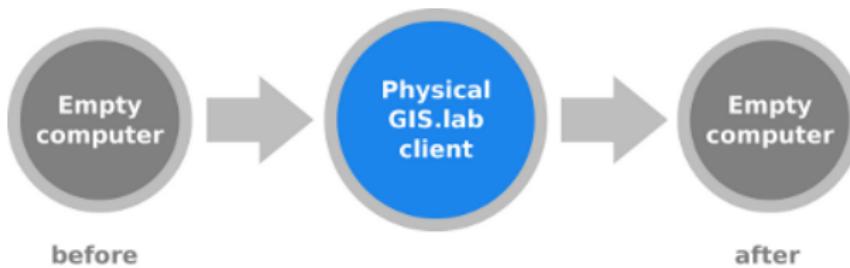


GIS.lab client

Client modes

Physical client

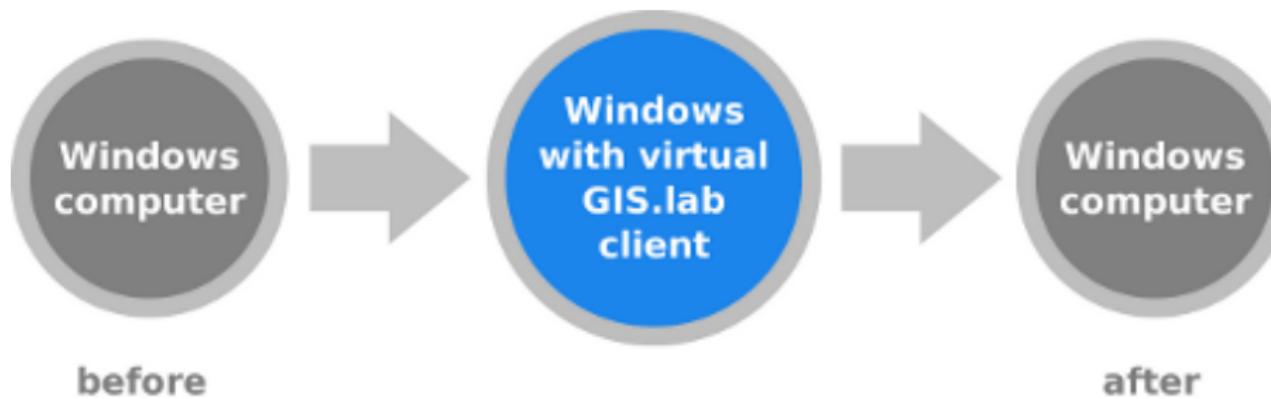
- ▶ best performance - using all power of physical hardware
- ▶ original OS is temporary not available



Client modes

Virtual client

- ▶ lower performance - using all power of virtual machine
- ▶ original machine OS and GIS.lab client run side-by-side



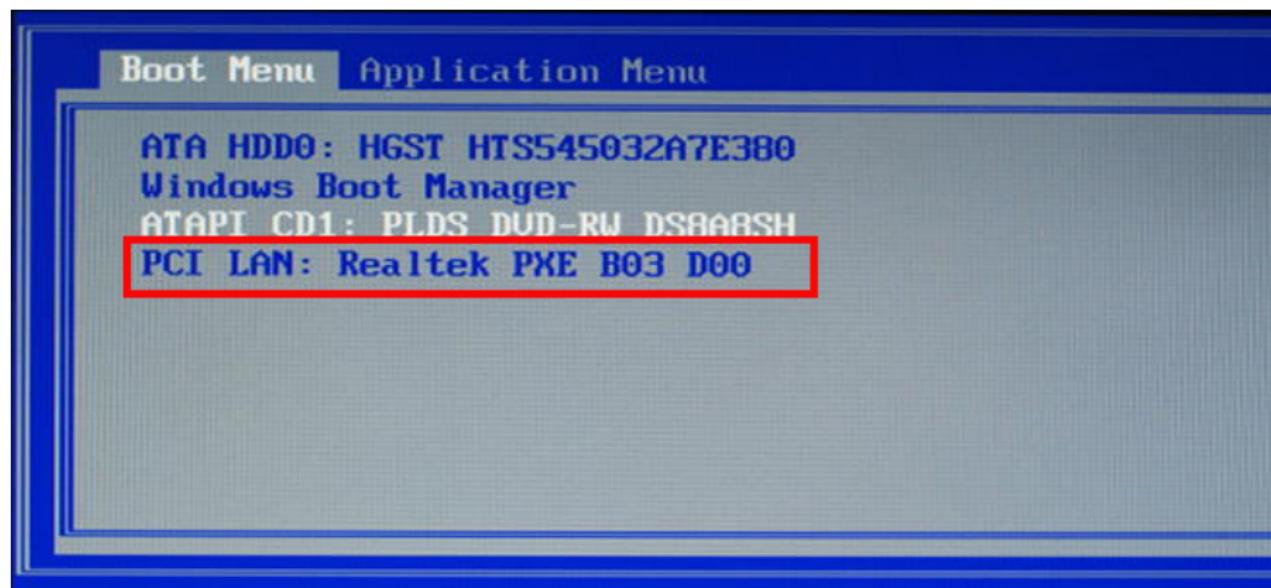
Client modes

Third party clients

- ▶ can use file or database storage
- ▶ can use WMS or WFS
- ▶ can browse GIS project via Internet browser

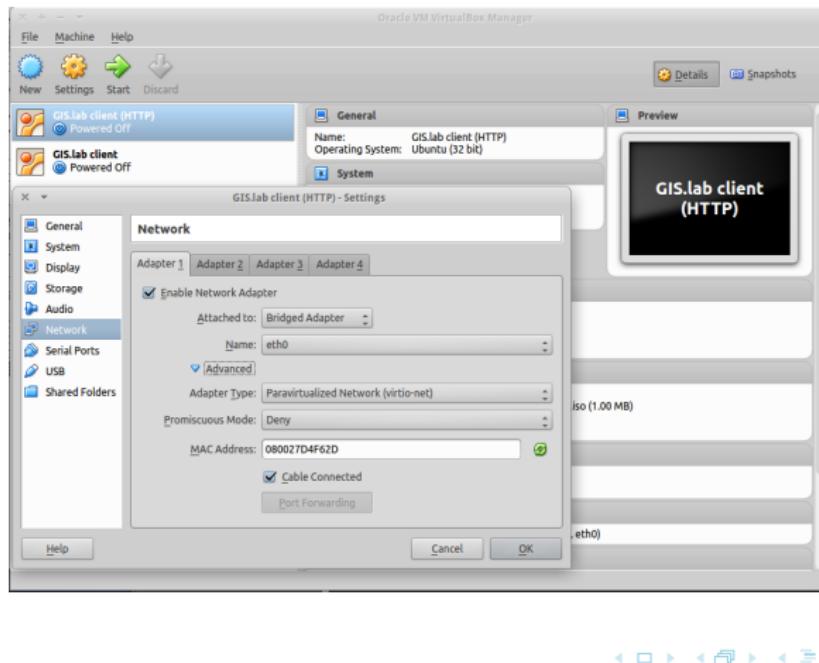
Physical client configuration

- ▶ enable 'legacy' boot and 'boot manager' in BIOS
- ▶ boot from LAN (PXE) in boot manager dialog (F12)



Virtual client configuration

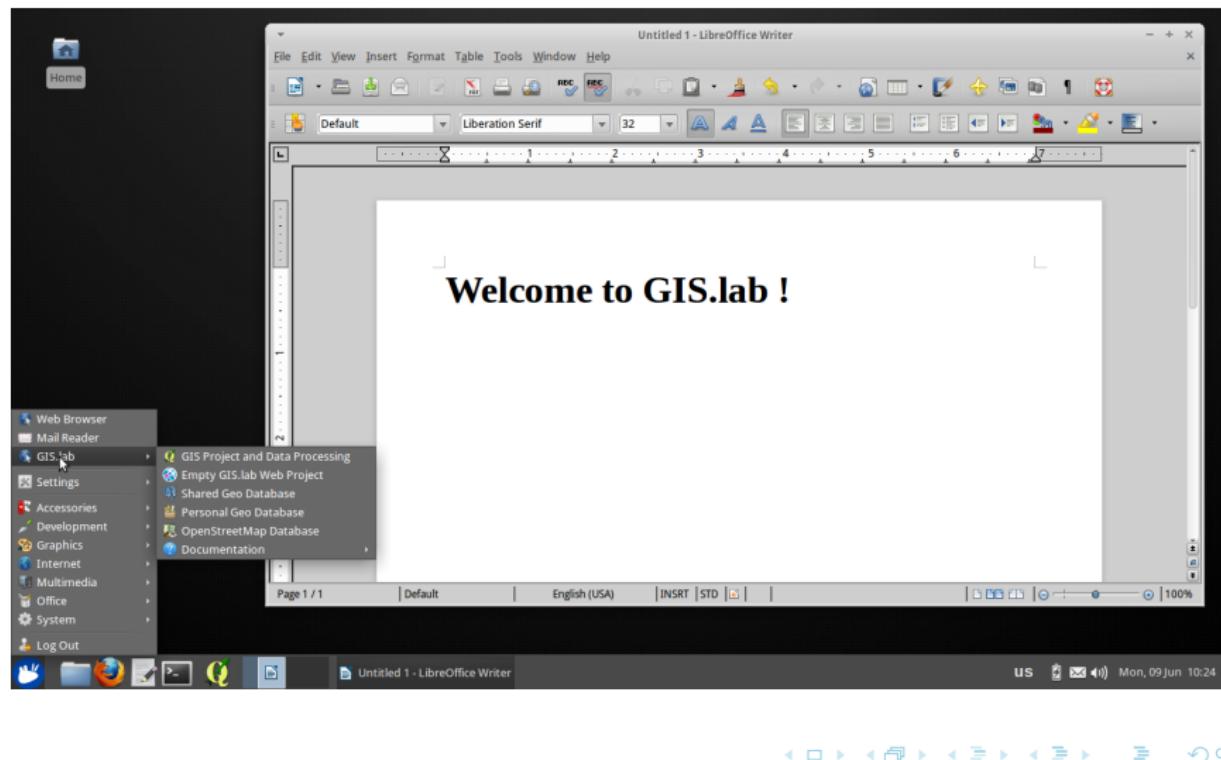
- ▶ create new VirtualBox machine with no hard drive
- ▶ configure virtual machine to boot from network



Client launch



Client desktop environment

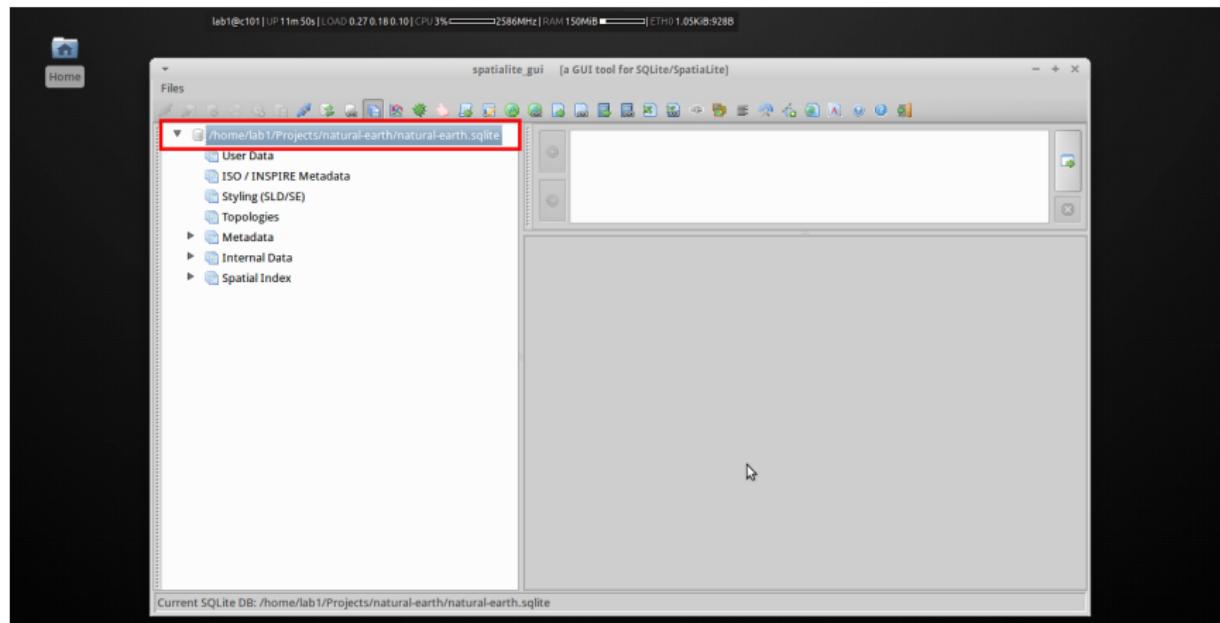


Real world example

Map of Central Europe

Spatial DB creation

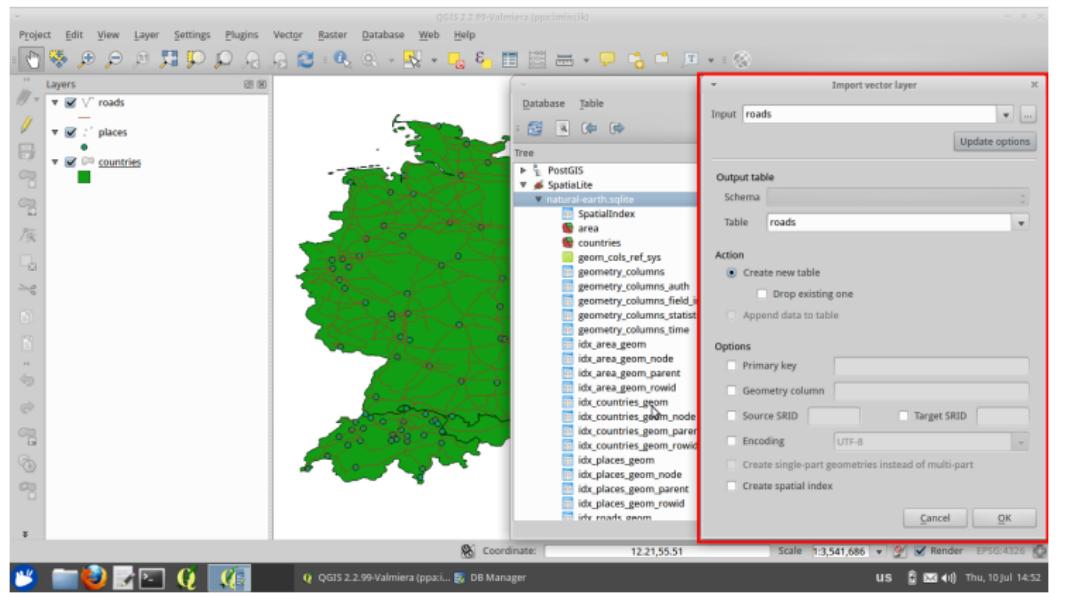
- ▶ create new SpatiaLite DB in SpatiaLite GUI



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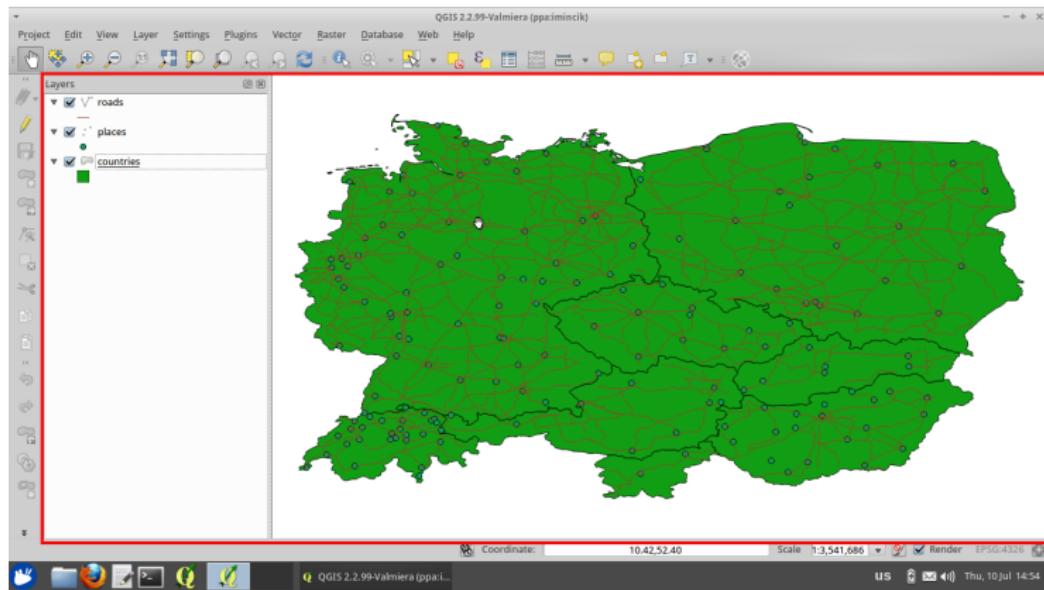
Data import

- ▶ inspect data in QGIS
- ▶ import layers to Spatialite DB using DB Manager plugin



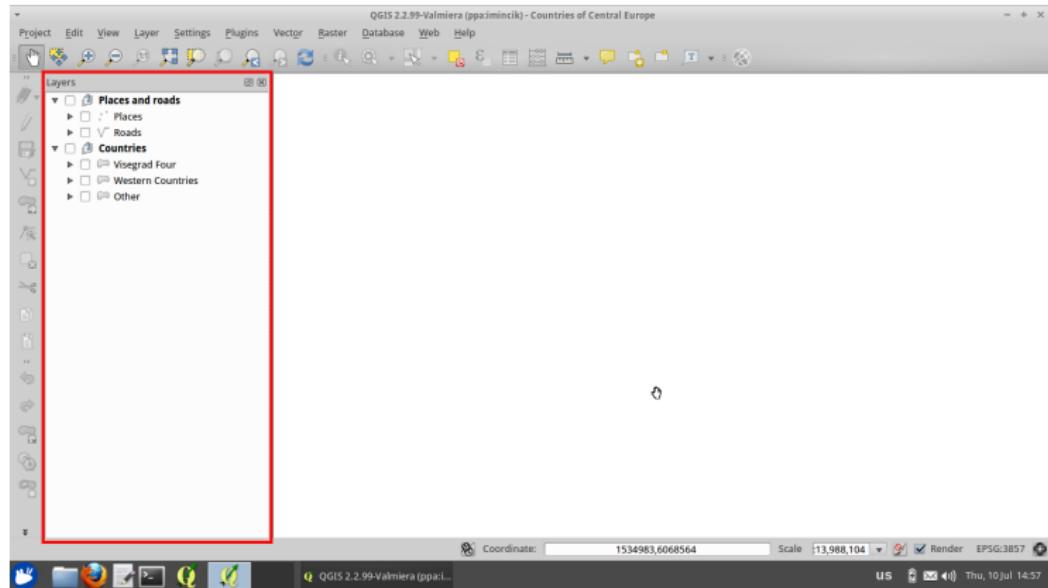
GIS project creation

- ▶ load imported layers back from SpatiaLite DB to QGIS



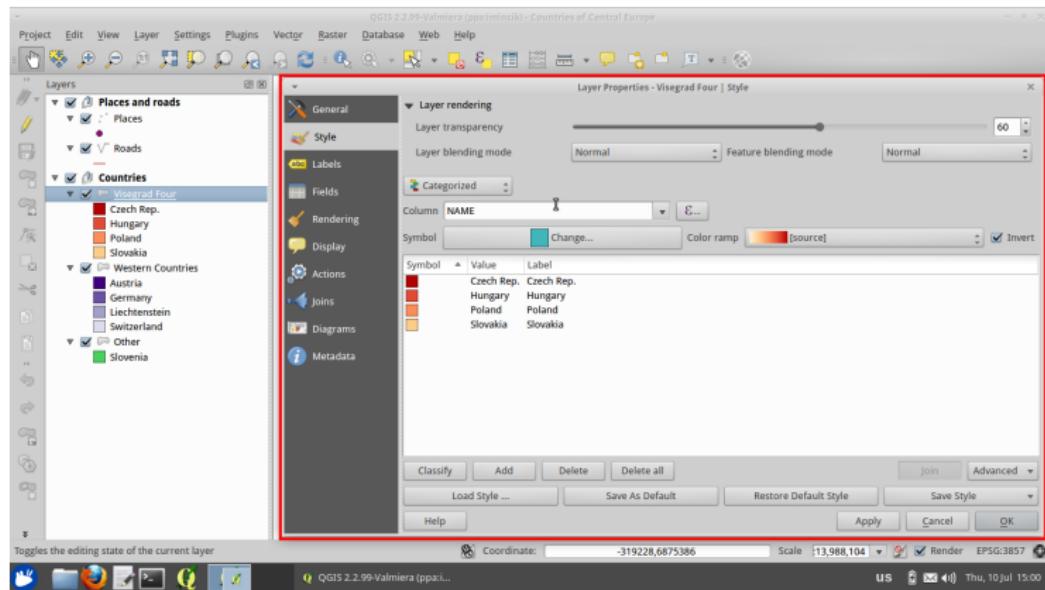
TOC structure

- ▶ create layer groups
- ▶ rename layers and move to corresponding groups

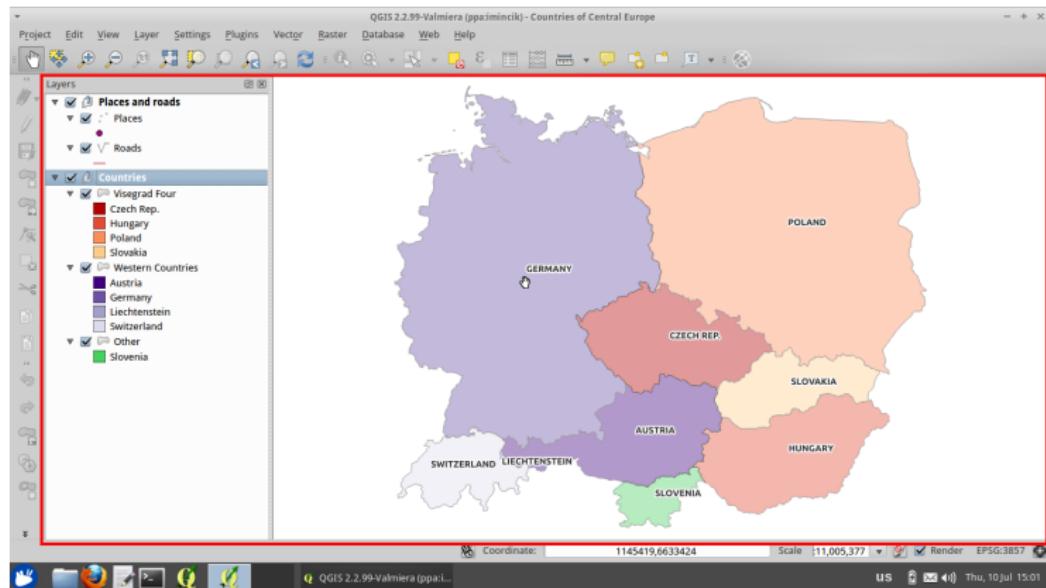


Layers styling

- ▶ set styles and map symbols to each layer
- ▶ set layer style by attribute values

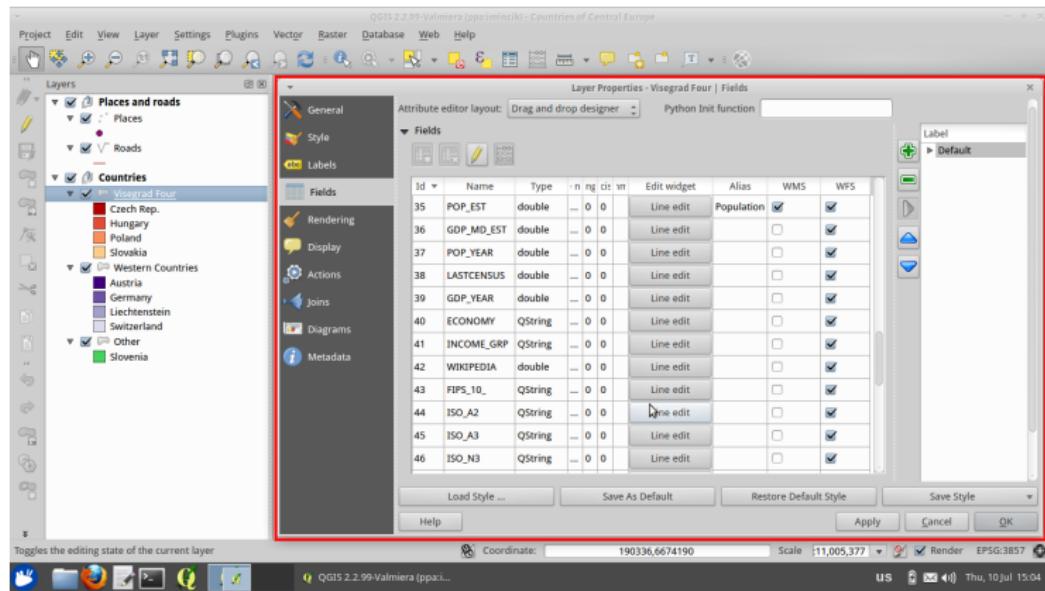


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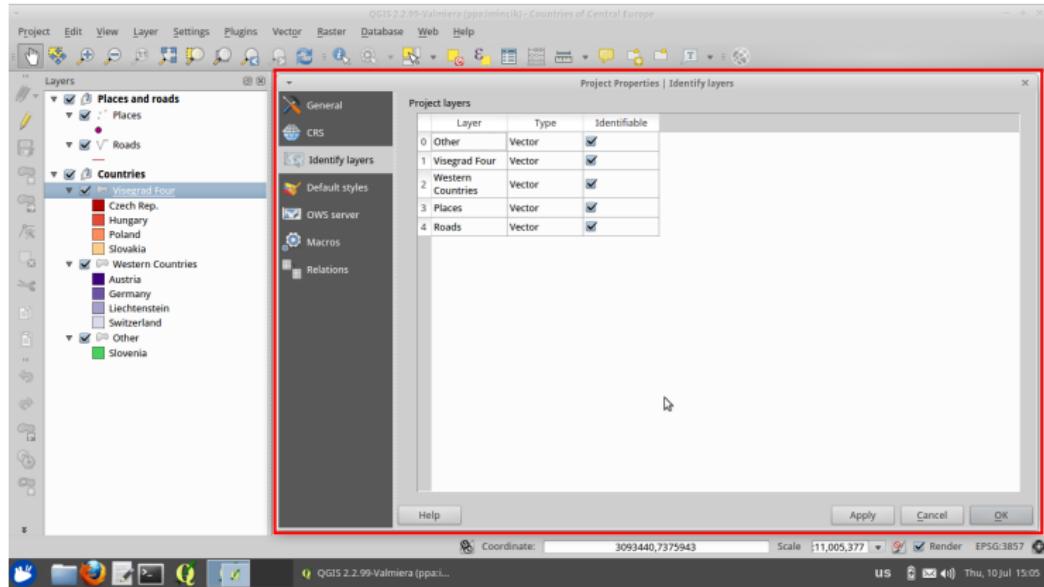
Attributes

- ▶ set human names to attribute fields
- ▶ create attribute table form



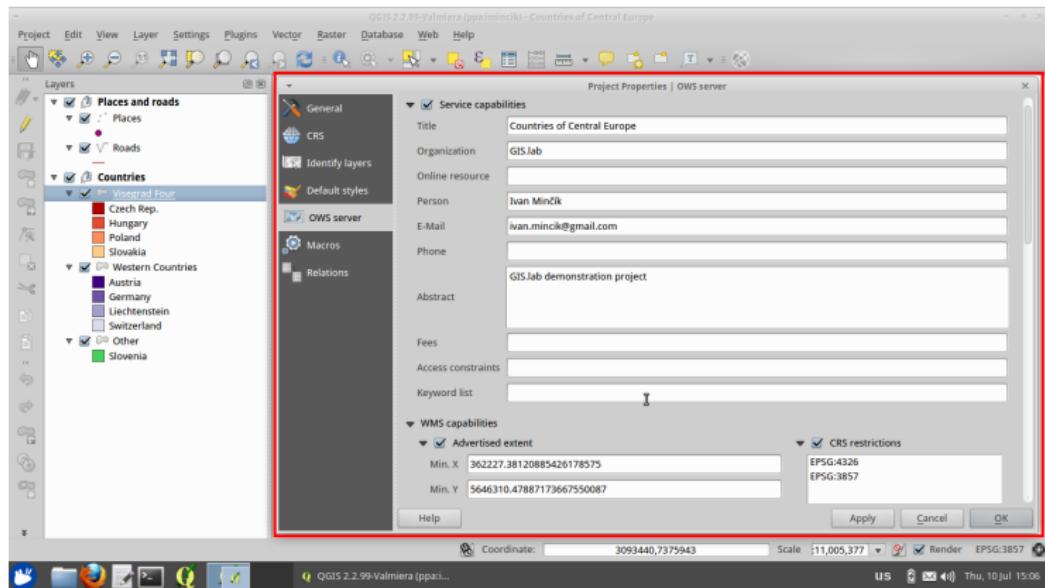
Feature information

- ▶ activate feature info for selected layers



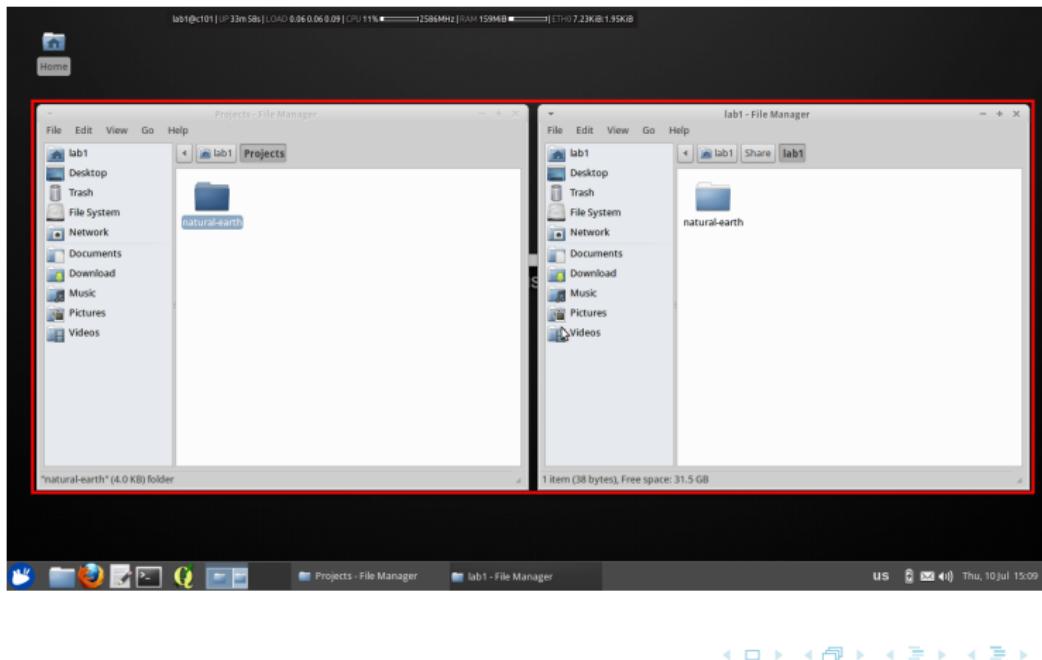
Project properties

- ▶ set project title, abstract, author name and email



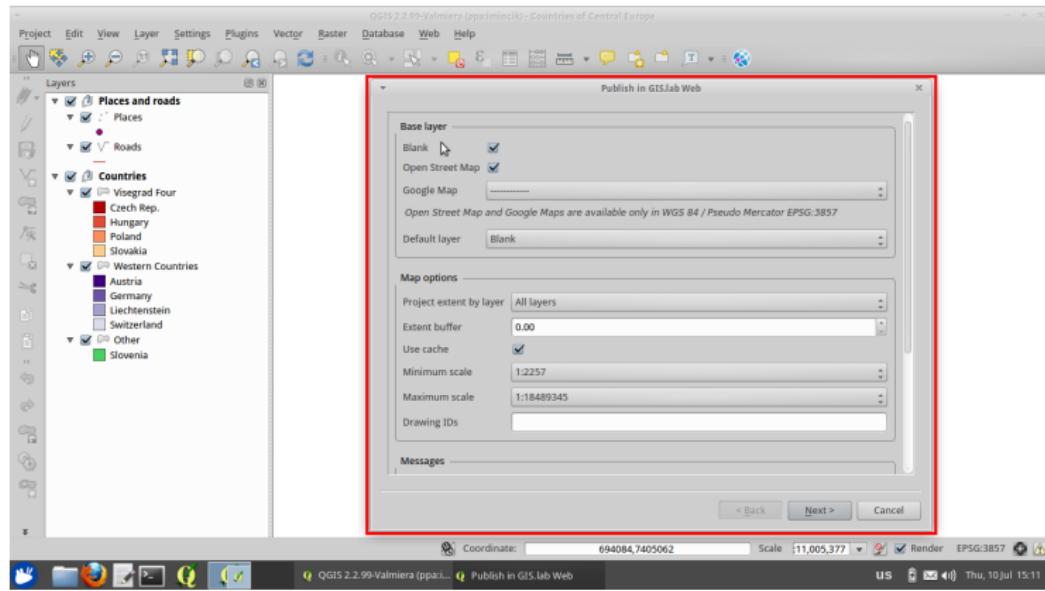
Project publishing

- ▶ save project
- ▶ move project to Share/\$USER directory



Project publishing

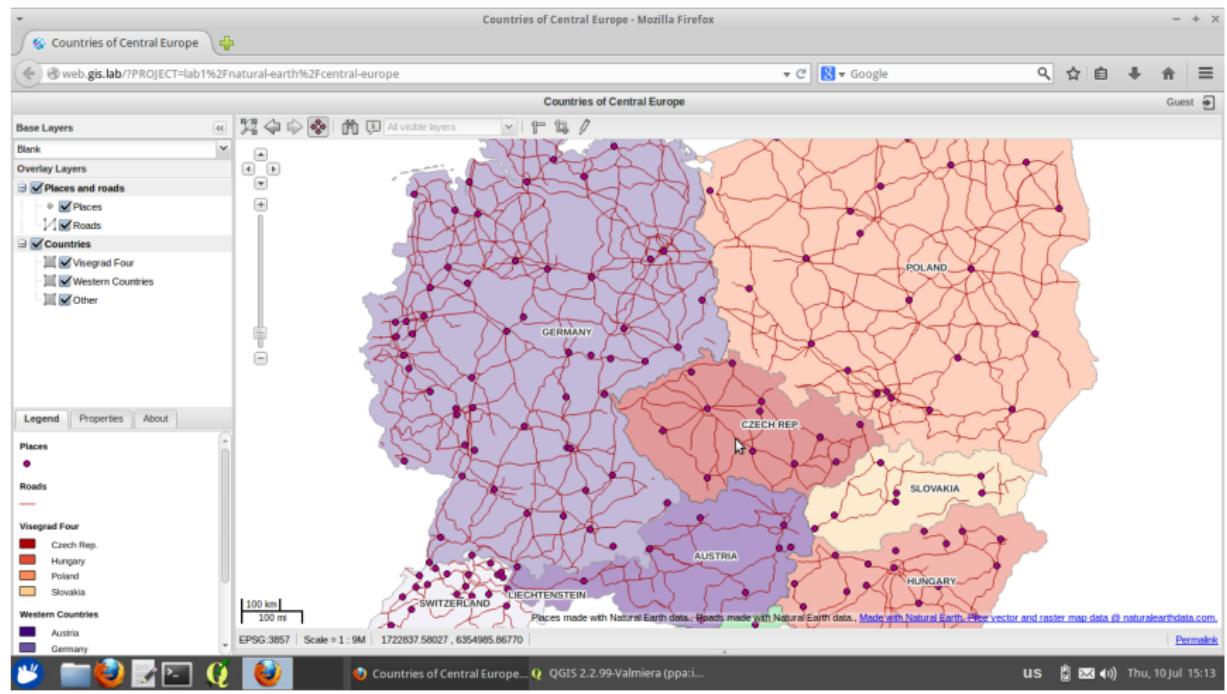
- ▶ publish project in GIS.lab Web



GIS.lab Web

GIS.lab Web

<http://web.gis.lab/?PROJECT=path-to-project>



GIS.lab Web goals

Automatically generated web front end for QGIS project content

- ▶ spatial data
- ▶ attribute data
- ▶ analysis
- ▶ custom features

Features of GIS.lab Web

- ▶ base layers (WMS, OSM, Google), overlay layers from QGIS project

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- ▶ collaboration tools
- ▶ high performance, intelligent layers caching

Search in GIS.lab Web

Countries of Central Europe - Mozilla Firefox

http://web.gis.lab/?PROJECT=lab1%2Fnatural-earth%2fcentral-europe

Places Logical operator: AND Limit: 50

County = Slovakia

Name = Presov

Search

Places made with Natural Earth data, Roads made with Natural Earth data, Made with Natural Earth Free vector and raster map data © naturaeartdata.com

Base Layers

Blank

Overlay Layers

Places and roads

Places

Roads

Countries

Visegrad Four

Western Countries

Other

Legend Properties About

Places

Roads

Visegrad Four

Czech Rep.

Hungary

Poland

Slovakia

Western Countries

Austria

Germany

100 km 100 m

Number of results: 1

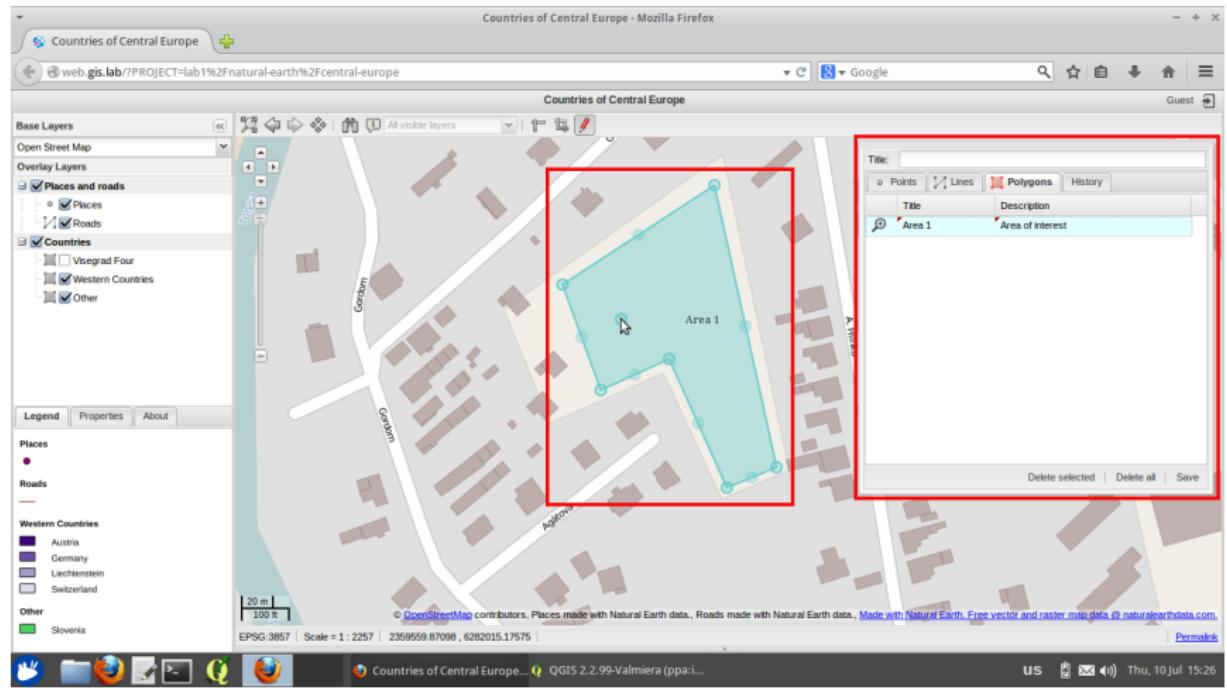
Places

Name	District	Country	Time zone
Presov	Pre	Slovakia	Europe/Bratislava

EPSG:3857 | Scale = 1 : 9M | 1099111.42955, 6491961.02237 | Permalink

Name	District	Country	Time zone
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Drawing in GIS.lab Web



Amazon AWS provider

Installation in Amazon AWS

Install dependencies

- ▶ \$ vagrant plugin install vagrant-aws

config-user.cfg

- ▶ configure Amazon credentials, placement and security zone

Install GIS.lab server

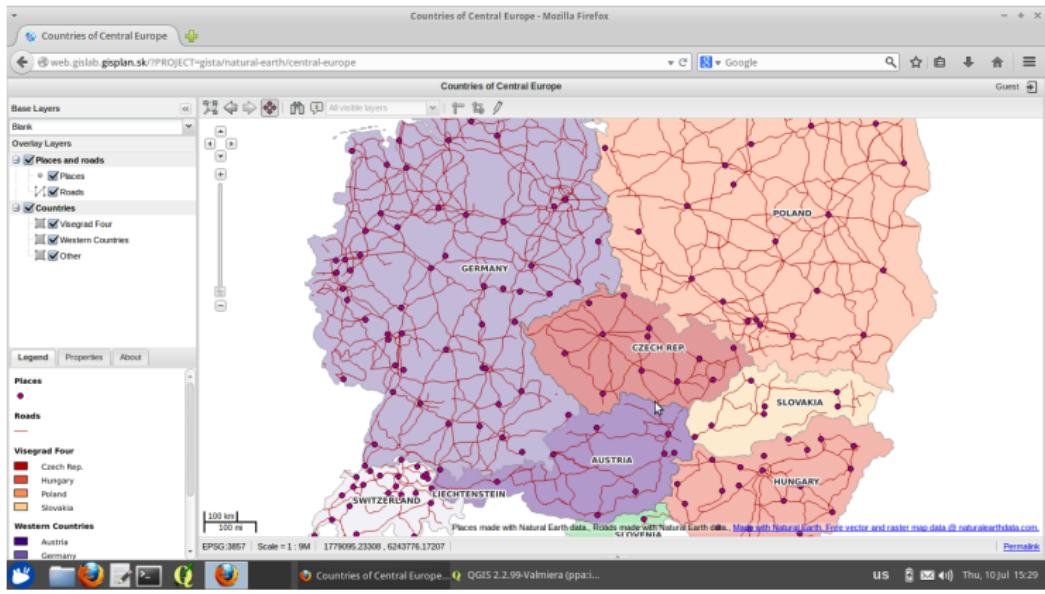
- ▶ \$ vagrant up --provider=aws

5 minutes

200 EUR / month

GIS.lab Web

http://EC2_PUBLIC_DNS_RECORD/?PROJECT=path-to-project



Summary

Summary

- ▶ **25** minutes of complete installation in LAN
- ▶ or **5** minutes deployment if using GIS.lab Unit
- ▶ **some time** to create GIS project
- ▶ **30** seconds to create web app
- ▶ **5** minutes of deployment in Amazon AWS

Future plans

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- ▶ web management interface
- ▶ multiple templates for GIS.lab Web
- ▶ own deployment tool - use Vagrant and server VM only for local deployment
- ▶ Docker integration on server
- ▶ computing resources sharing between all GIS.lab machines
- ▶ Web Processing Service (WPS) integration

Final notes

Deployment scenarios

- ▶ virtual client - server infrastructure for local area network (LAN)
- ▶ GIS server infrastructure in data center or cloud (Amazon Web Services)
- ▶ development and testing environment
- ▶ infrastructure for education and Open Source GIS software advocacy
- ▶ crisis management command center infrastructure (GIS.lab, QGIS, InaSAFE, Ushahidi)
- ▶ crowd mapping infrastructure

FAQ

- ▶ is there any difference between GIS.lab and GIS-Lab (Russia) ?
- ▶ what is a difference between OSGeo Live DVD and GIS.lab ?
- ▶ why are you developing your own web client instead of using and contributing to QGIS Web Client ?

Final notes

- ▶ **Homepage:** <http://imincik.github.io/gis-lab>
- ▶ **Demo:**
<http://web.gislab.gisplan.sk/?PROJECT=gista/natural-earth/central-europe>

Thanks for attention.

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