Hochschule für Technik und Wirtschaft Berlin

University of Applied Sciences

# Open Historical Data Map (OHDM) - work in progress

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http://www.htw-berlin.de
http://people.f4.htw-berlin.de/lehrende/schwotzer.html
http://www.ohdm.de

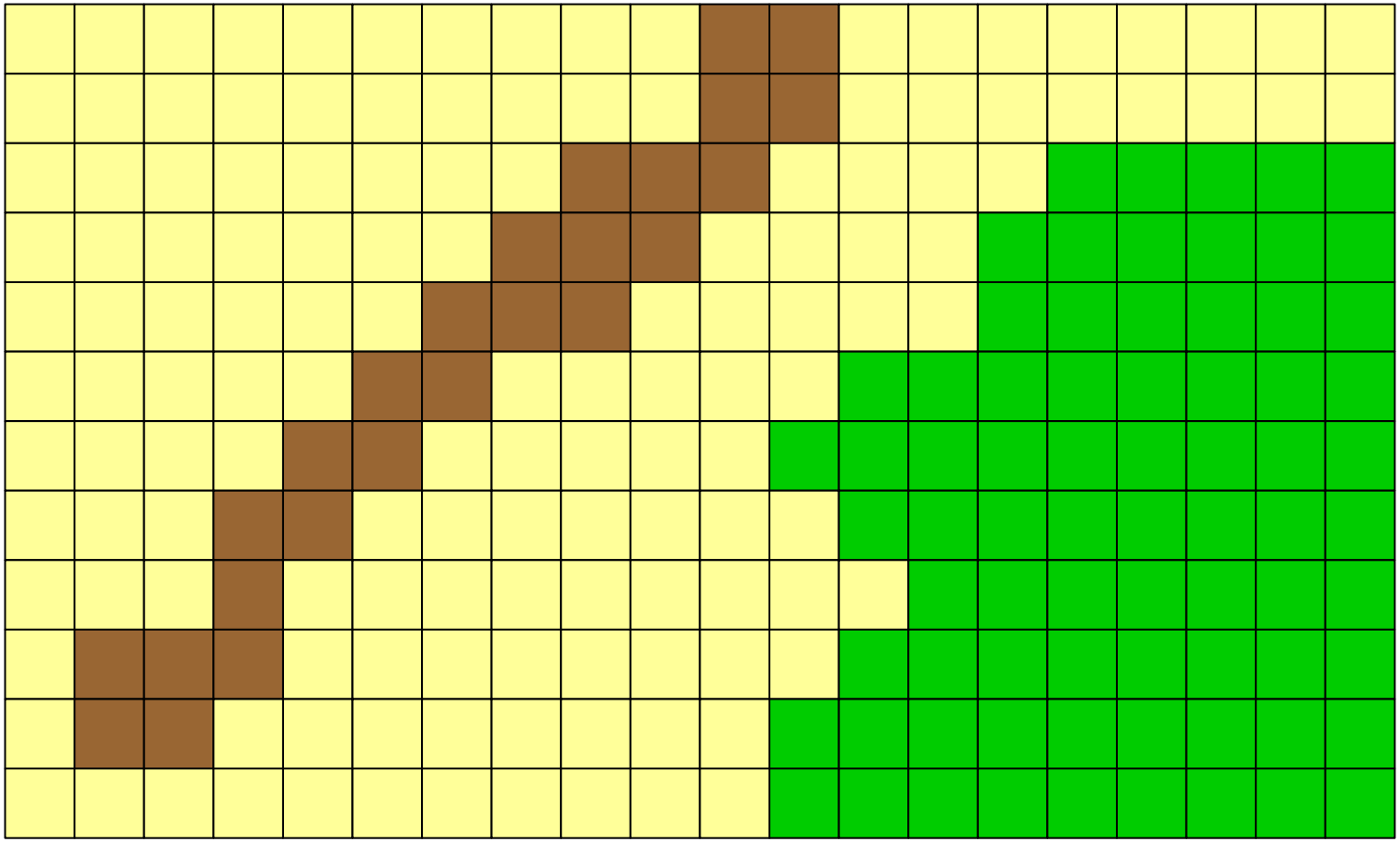
# Old maps / historical data

- Libraries (and other) parties digitize old maps
- Result: Raster graphics often in amazingly high resolution
- Humans like raster graphics.
- Computers don't.

# A way

Raster data

Point (longitude, latitude)



Vector data are better..

# Raster data can be used..

- Route finding
- For spatial calculations
- Basis for rendering of historical maps
  - For different purposes e.g. in different styles
- How to get vector data?

# Source of vector data

- Old maps
- Volunteers (professionals and non-prof.)
- Open Street Map

# OHDM – component overview

Open Street Map

Import / Update

Semi-automatic vectorization

Historical Route Planning

OHDM Editor (Browser, Android)

OHDM DB

GeoServer

Historical Maps via WMS

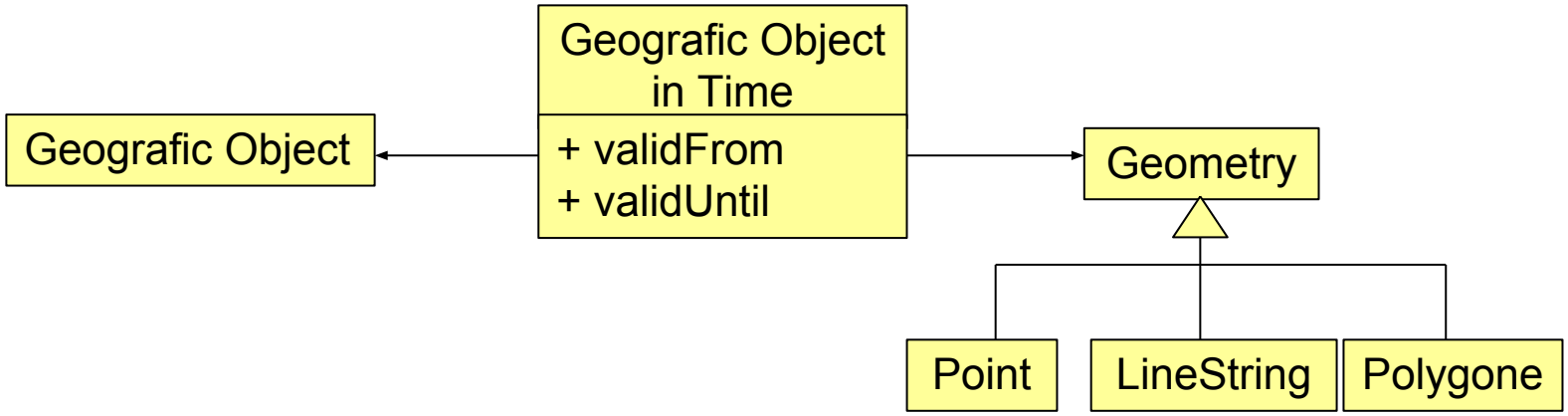
# Open Street Map – our hero

- Huge collection of accurate vector geometries
- Source for different map generator (renderer)
- Public available
- Content produced by volunteers in the field
- We want an OSM for historical data – that's OHDM.
- Why not using OSM ?

# OSM – data model

- node(longitude, latitude)
  + tags (name / value)
- way = many nodes
- + tags (name / value)
- relation = many nodes, ways, relations
- + tags (name / value)
- Data model doesn't fit.
- no understanding of time
  (What's not new is a wrong)

# OHDM core data model




A geographic object has a relation to a geometry during a period of time.

A geometry has a relation during a period of time.

Geometry and object can have multiple relation which do not overlap.

# Source1: OSM import

- Annual OSM import (start this year)
  - What's new today is history tomorrow
- Challenging:
  - Several billions of geometries
  - Several billions of geographic objects
- Run into technical problems when rendering maps – working on it

- http://ohsm.f4.htw-berlin.de:8080/geoserver/ohsm/wms?service=WMS&version=1.1.0&request=GetMap&layers=ohdm_berlin_dev2&styles=&bbox=12.9073644,52.2310664,13.8764716,54.136754&width=1200&height=700&srs=EPSG:4326&format=application/openlayers

# Source 2: Old maps

- Another presentation today...

# Source 3: Volunteers

- Prototypes of editors exist
  - Webbased (OpenLayers)
  - Android
- We believe in a crowd solution
  - Doing those miracle vector distortion can also be done by interested non-professionals (e.g. me)

# Services

- Route finder
  - Challenging: go from Berlin to Rom in 1631
- Historical (not old!) maps (different styles)
- Place to save historical spatial data
  - Pollution (e.g. radioactive nuclides)
  - Coverage with wood
- Users:
  Researchers, interested non-professionals

# Remarks on routing

- Challenging!!
- How long needs someone
  - born in Dresden to go to Hamburg in 1980?
  - from Berlin to Magdeburg in 1631?
  - from Prague to Athens in 1944?
- Relevant paramters:
  - Social status, gender, religion, nationality, ...

# Thanks to my students

- Rosenträger: Data model
- Thiele / Franken / Nowicki: Rendering maps with GeoServer
- Hadizadeh: Programmers API
- Bosnar: Routing finding with historical data
- Holst: Speed up rendering with GeoServer
- Hirsch / Westphal – can speak for themselves

# Status

- We know they way.
  - Big server, several prototypes.
- Active OSM archive will go online this year.
- We know the risks and what not works.
- Looking for partners
- Going to apply for funding projects from German sources

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# Danke für Ihr Interesse :)

Professor Dr.-Ing.

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