LinkedGeoData.org

http://linkedgeodata.org/

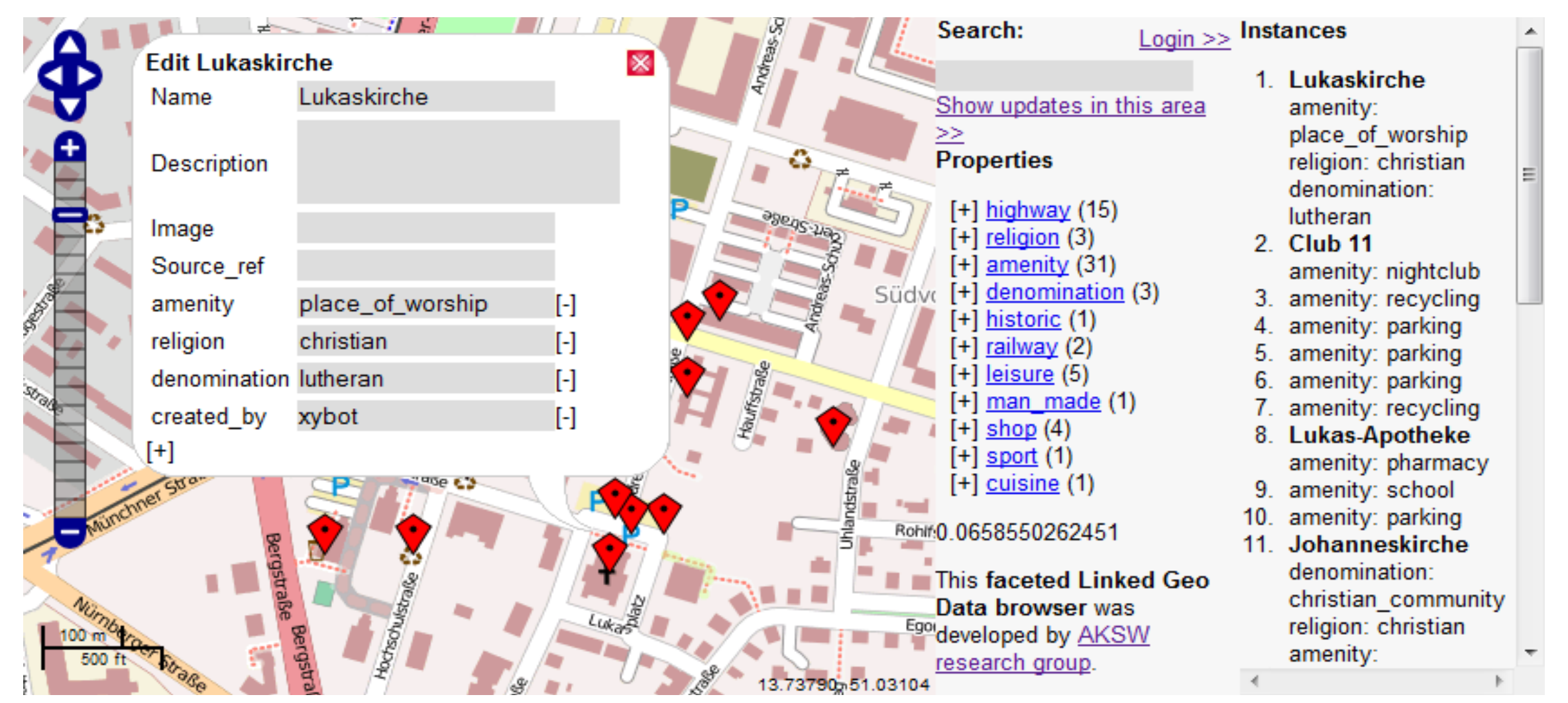http://linkedgeodata.org/browser/

OpenStreetMap ➤ LinkedGeoData

OpenStreetMap

Project goal:
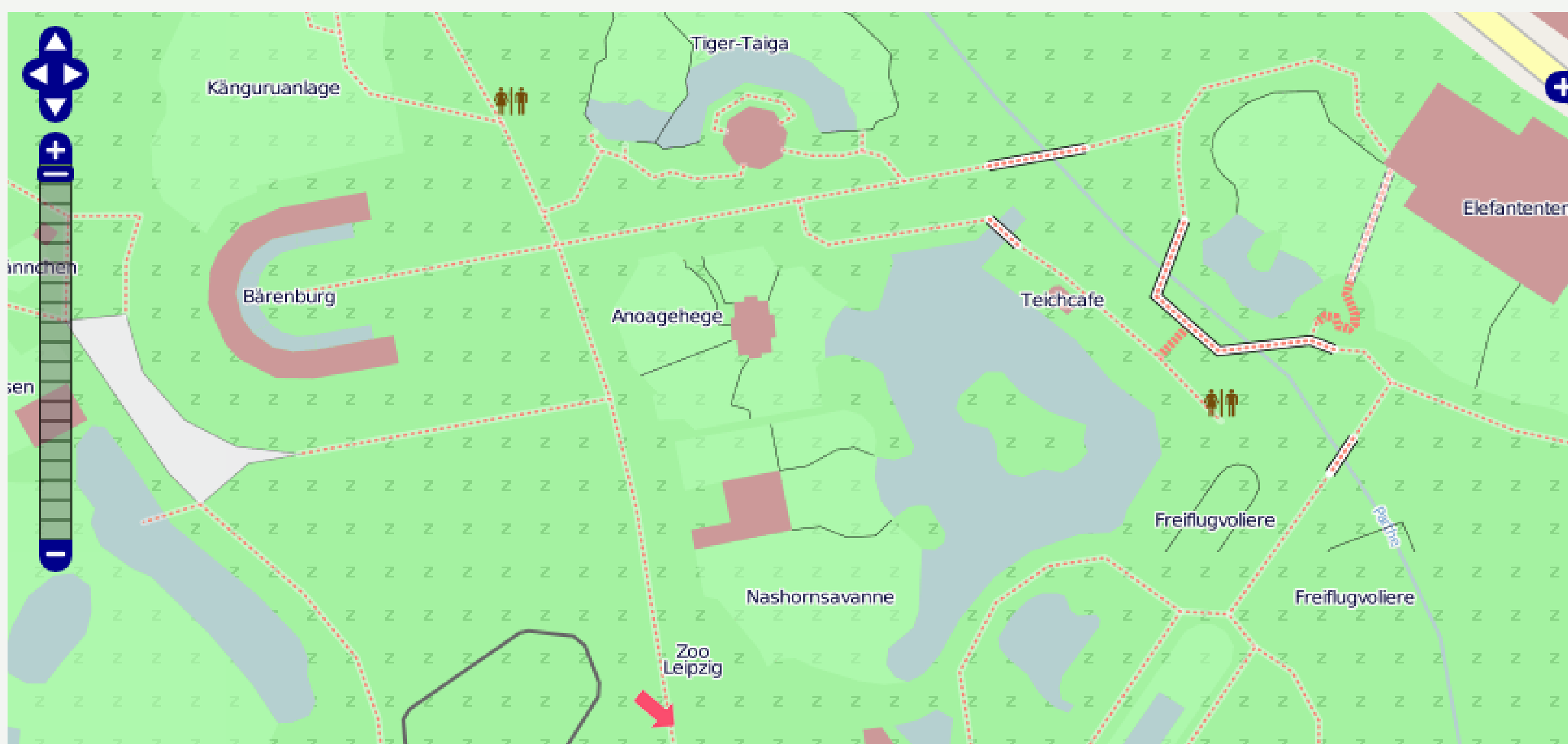**create free map of the world**

Large community project:
- 100 000 users,
- 1 billion uploaded GPS points
- growing fast:

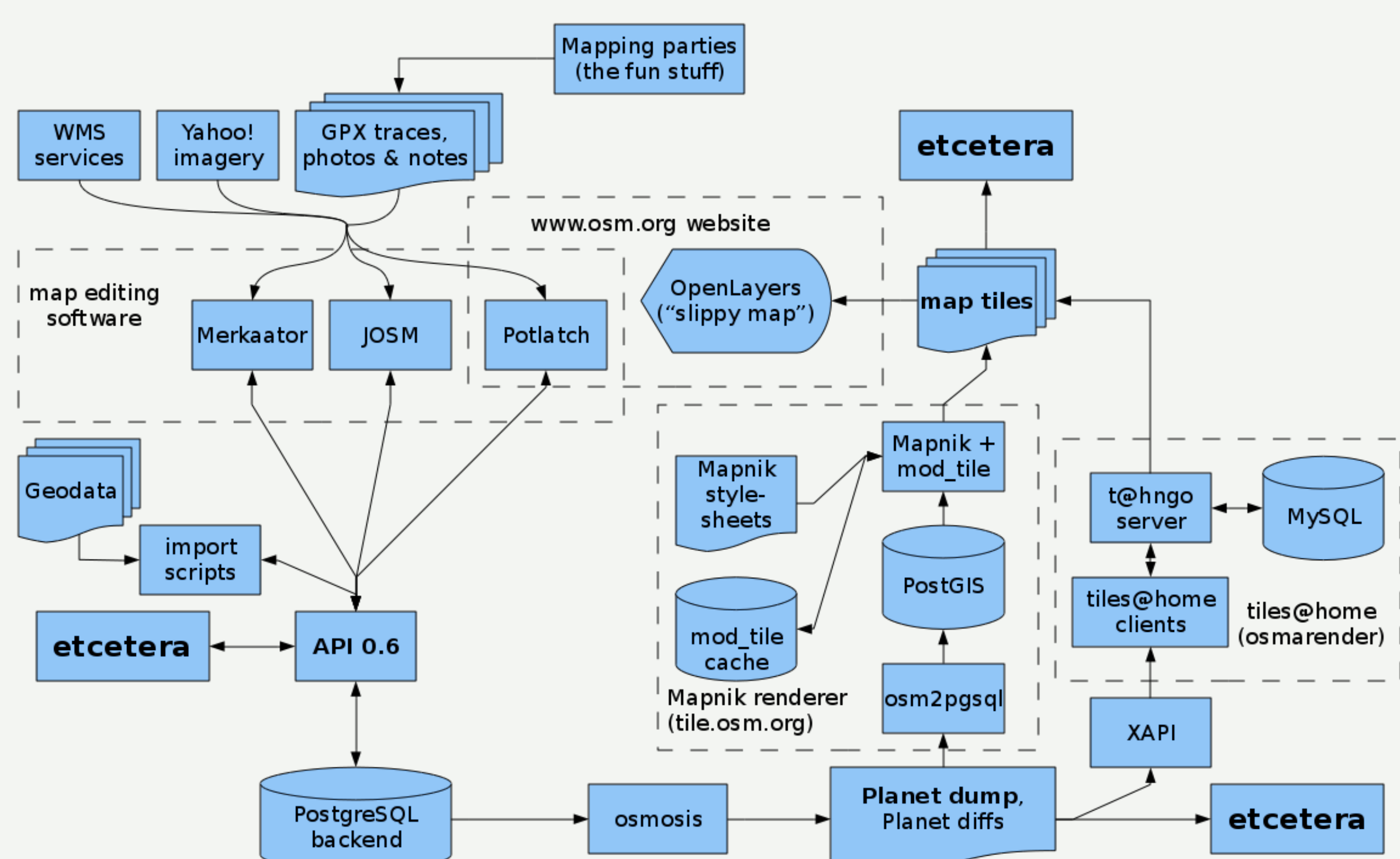| Category	Overall Amount	Daily Additions	Monthly Growth
users	127 543	200	11%
GPS points	915 392 139	1 600 000	10%
nodes	374 507 436	400 000	5%
ways	29 533 841	30 000	7%
relations	136 245	300	6%

OSM Statistics as of June 2009

- very detailed (rendered map of Leipzig zoo):

Simple Data Model:
- Nodes: points on earth with longitude/latitude values
- Ways: ordered sequences of nodes
- Relations: groupings of nodes and ways
- Each element can have arbitrary key value pairs
- Ways with identical start and end point are closed, e.g. For presenting buildings, land areas
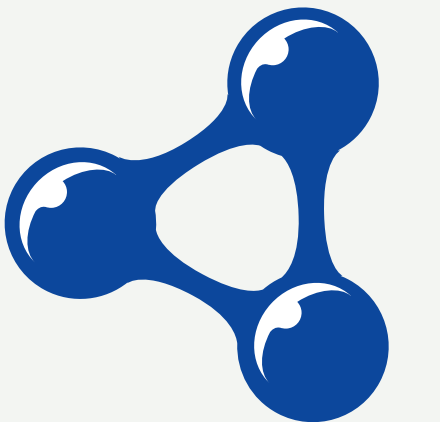
Project structure:

Source: http://wiki.openstreetmap.org/wiki/Image:OSM_Components.png

LinkedGeoData

Project goal:
adding a spatial dimension to the Web of Data

Conversion to RDF/OWL:
- reuse of wgs84 vocabulary
- categories of attributes:
  * classification attributes: highway = motorway
  * desc. attributes: lit = yes, internet_access = wired
  * data attributes: max_width = [...]
- represented via class hierachy, object properties, and data properties in OWL
- **500 classes, 50 object properties, 15000 data properties, 350 million nodes, 3 billion triples**

Use Case Examples:
- offerings of baker shops next door
- map of distributed branches of a company
- historical sights along a bycicle track

REST Interface:
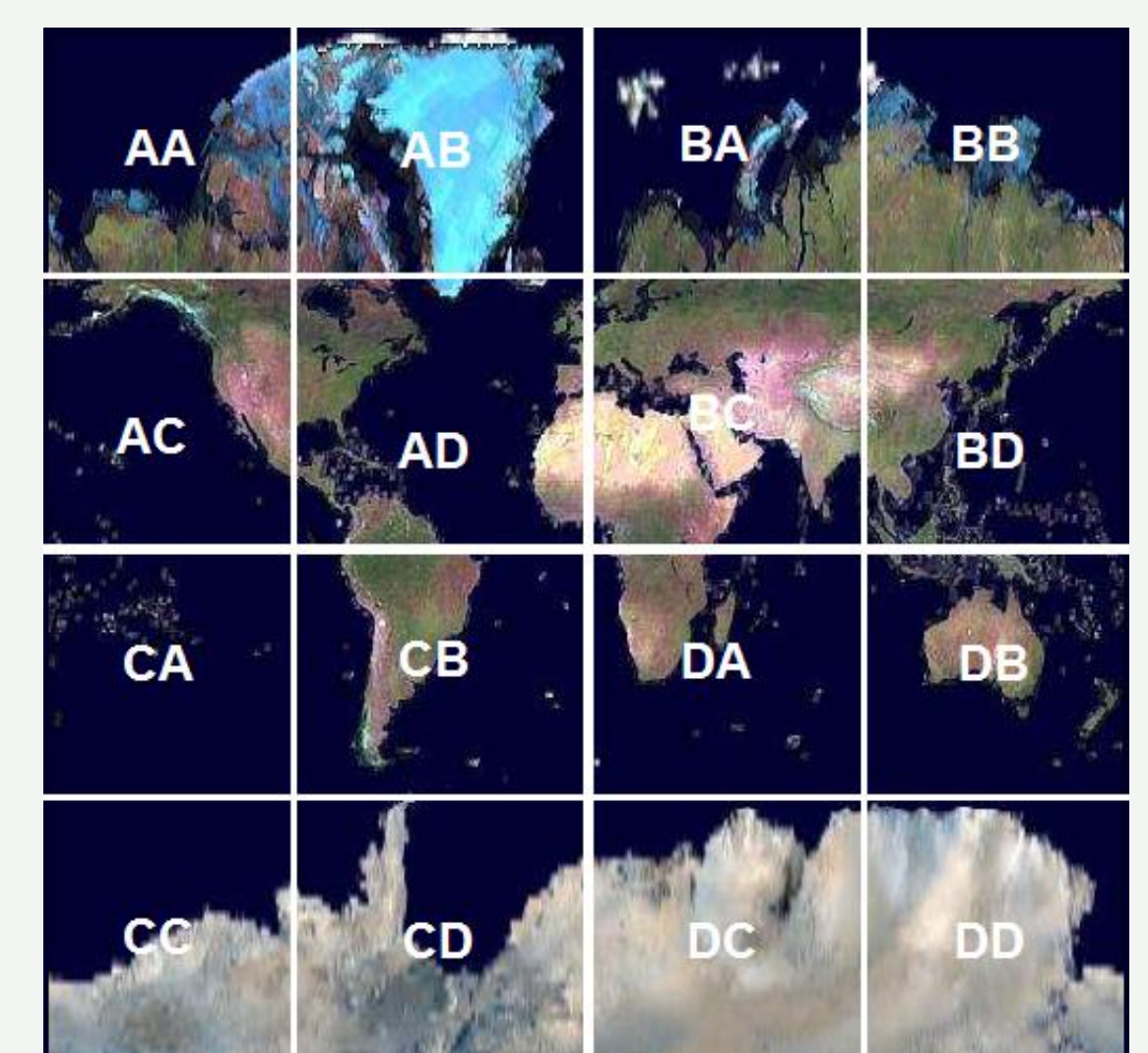- *natural entry point for spatial data is neighbourhood of a point:*

longitude	latitude	radius	restriction

http://LinkedGeoData.org/near/48.213,16.359/1000/amenity=pub

DBpedia Mapping:
- 53000 POI matches
- use of type, spatial, naming information for high performance and precision

Type	# Matches	Rate	Type	# Matches	Rate
city	45729	70.9%	country	160	20.1%
railway station	929	24.8%	island	313	29.8%
university	210	13.3%	mountain	1475	24.5%
school	1483	38.4%	river	677	32.0%
airport	649	8.4%	island	25	4.3%
lake	1014	22.1%	stadium	346	17.0%

LGD Browser (see top right):
- allows **efficient facet-based browsing**
- **quad tile indexing** with properties and property value counts precomputed for hypercubes in 18 zoom levels

Project Data:
- **Homepage**: http://linkedgeodata.org
- **Mailing list**: linked-geo-data@googlegroups.com
- **RDF download**: http://linkedgeodata.org/Datasets
- **SPARQL Endpoint**: http://lod.openlinksw.com

Authors: Sören Auer, Jens Lehmann (AKSW Research Group, Universität Leipzig)