



Neo4j Spatial

Backing a GIS with a real graph database

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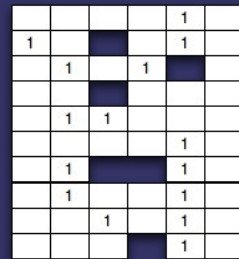
NoSQL

Not Only SQL

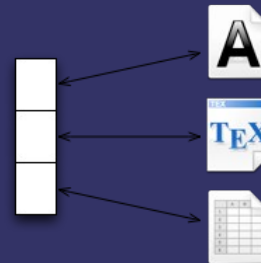
Key-Value



BigTable



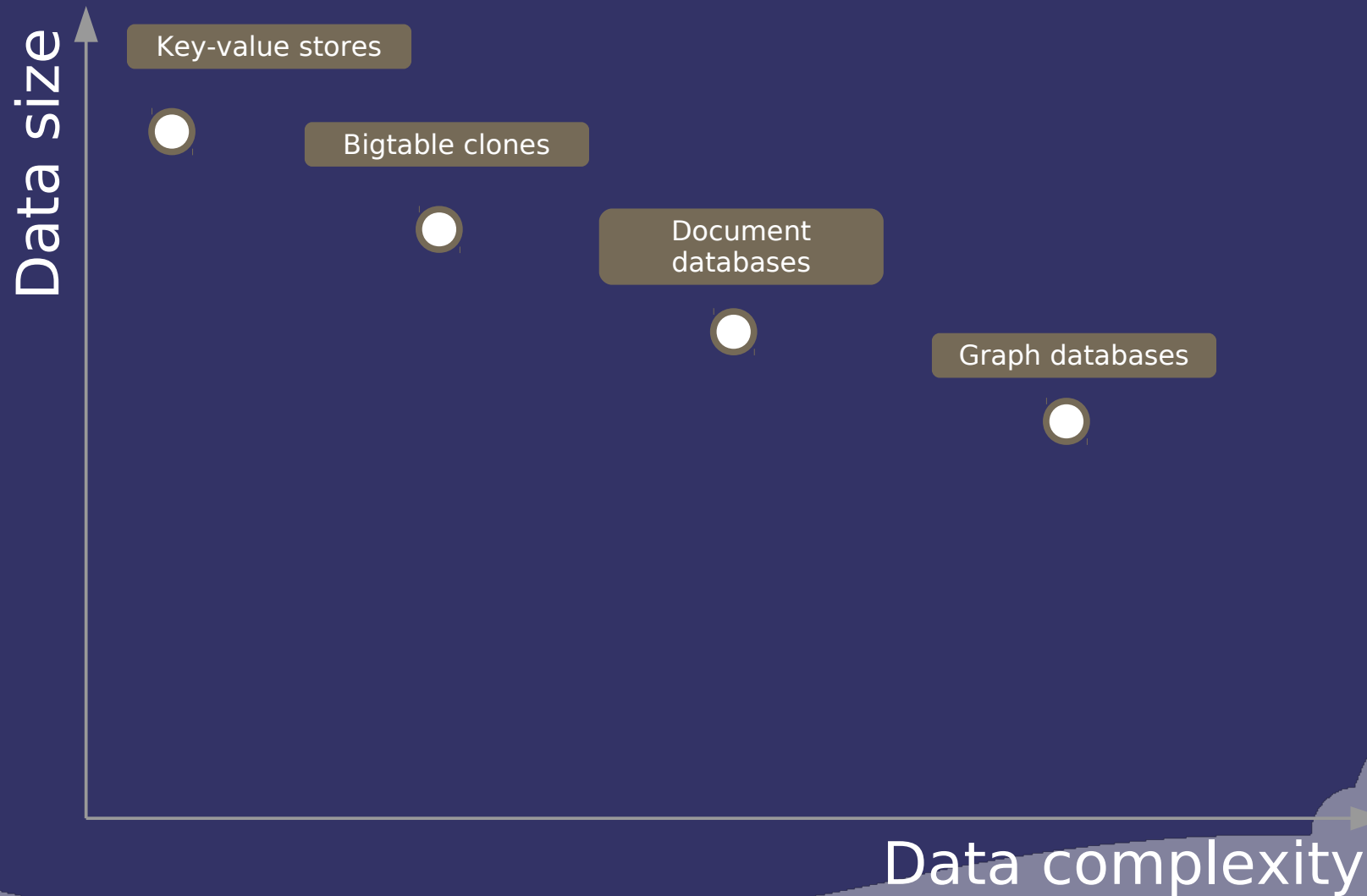
Document



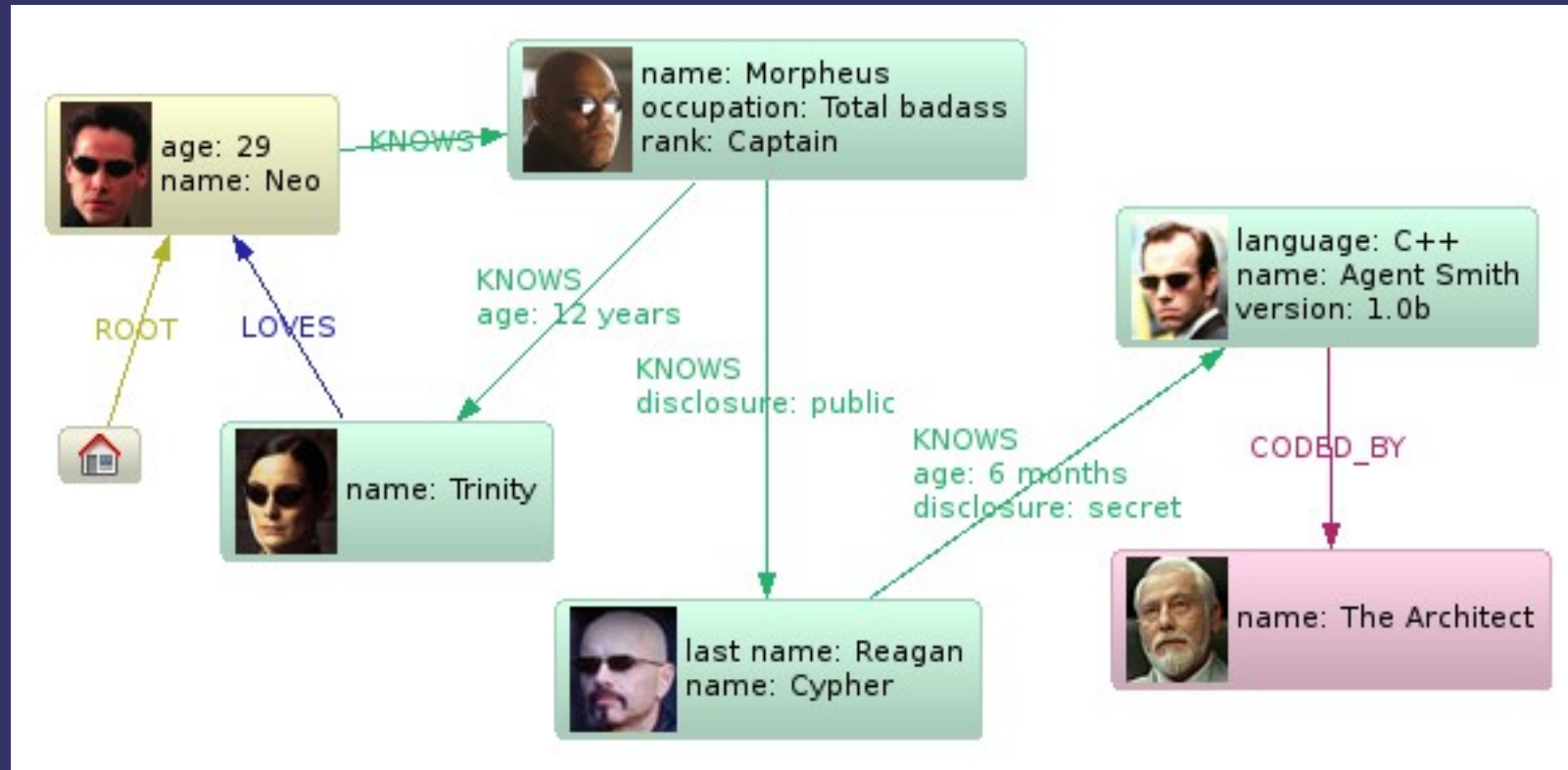
Graph DB



NOSQL data models



Neo4j – Nodes, Relationships, Properties



- ◎ Nodes have different properties
 - Matrix characters: People vs. Programs
- ◎ Build structure as you go
 - Who loves Neo?

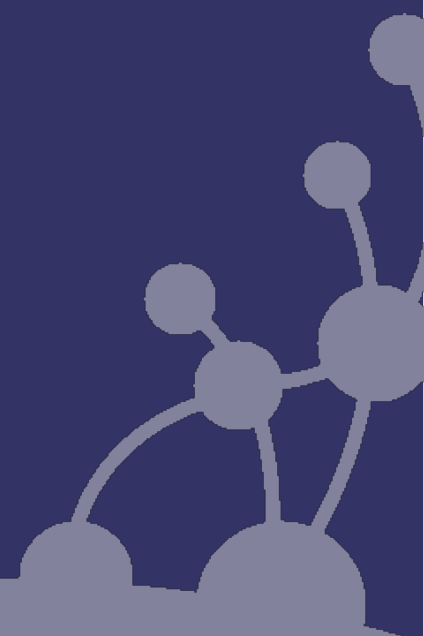
Neo4j Spatial

◎ Core

- Storage
- Search
- Operations
- I/O

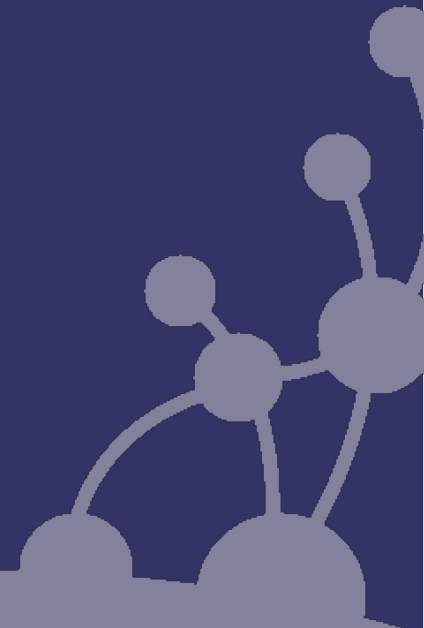
◎ Extensions

- Geotools & GeoServer
- uDig
- OpenStreetMap

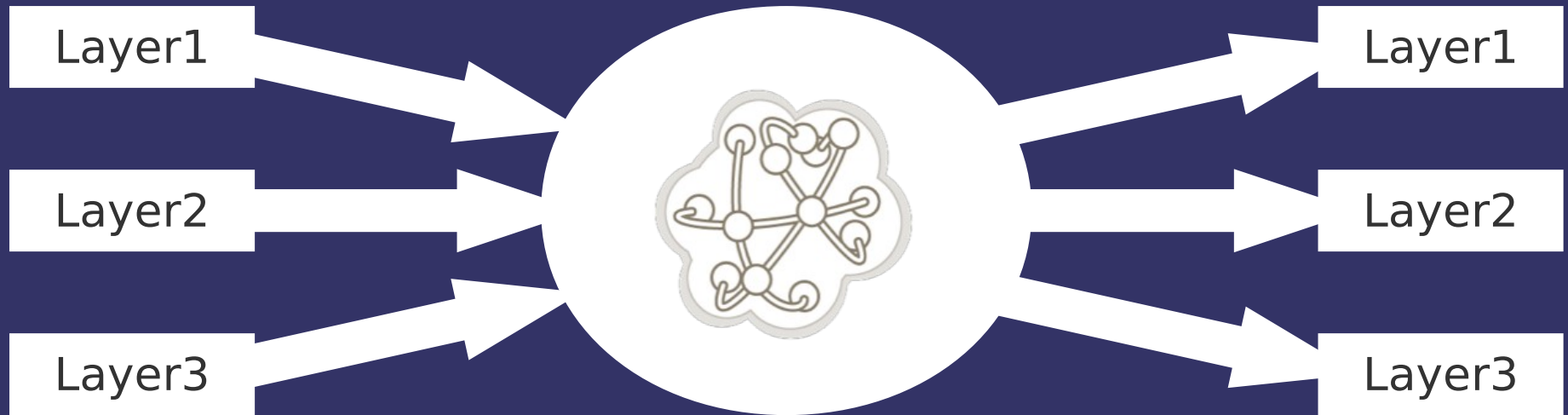


Topology

Connectedness



Connecting and Splitting

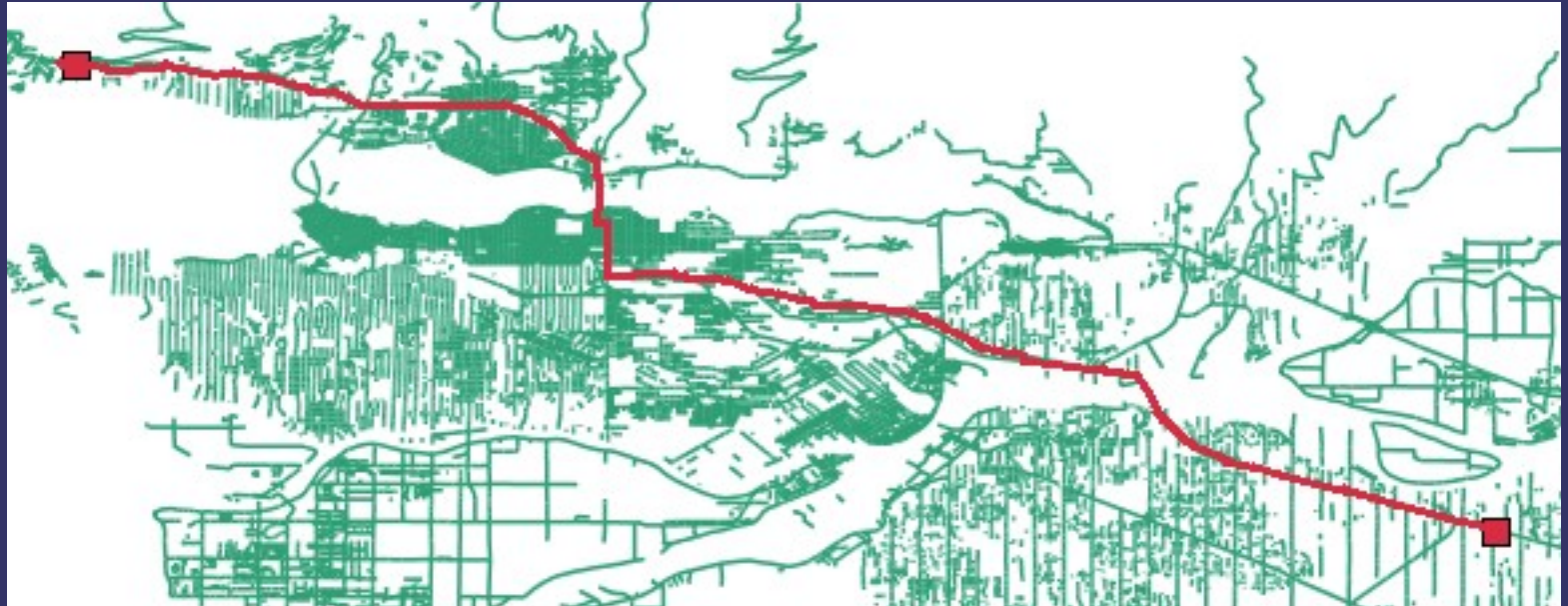


◎ Why have layers at all?

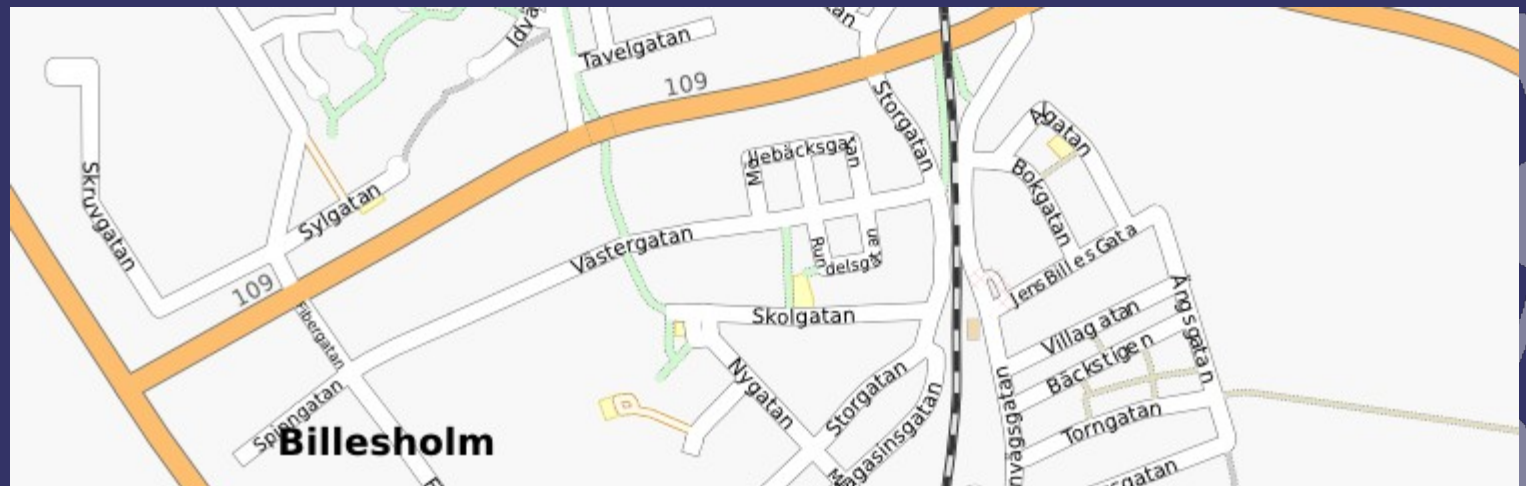
- Simpler renderers
- Historical
- Data sources

Connecting and Splitting

◎ Routing

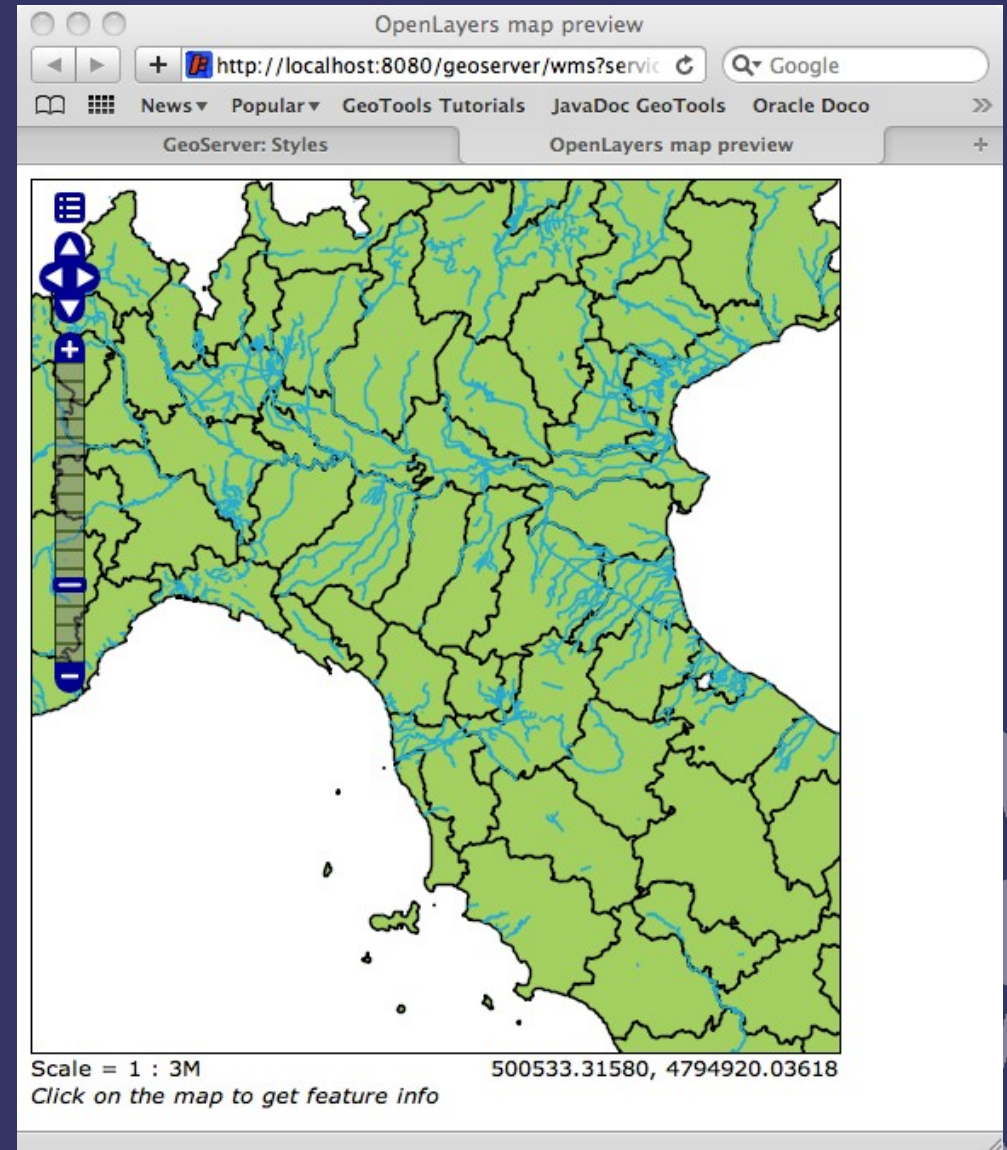


◎ OSM Dynamic Layers

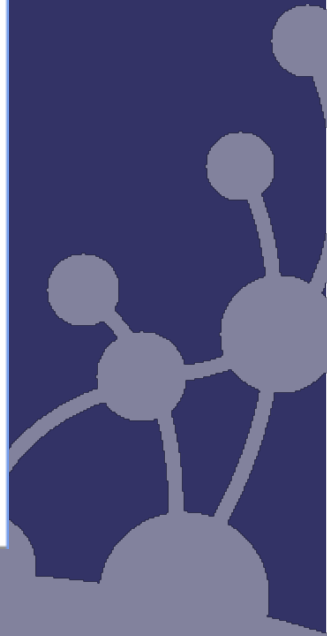
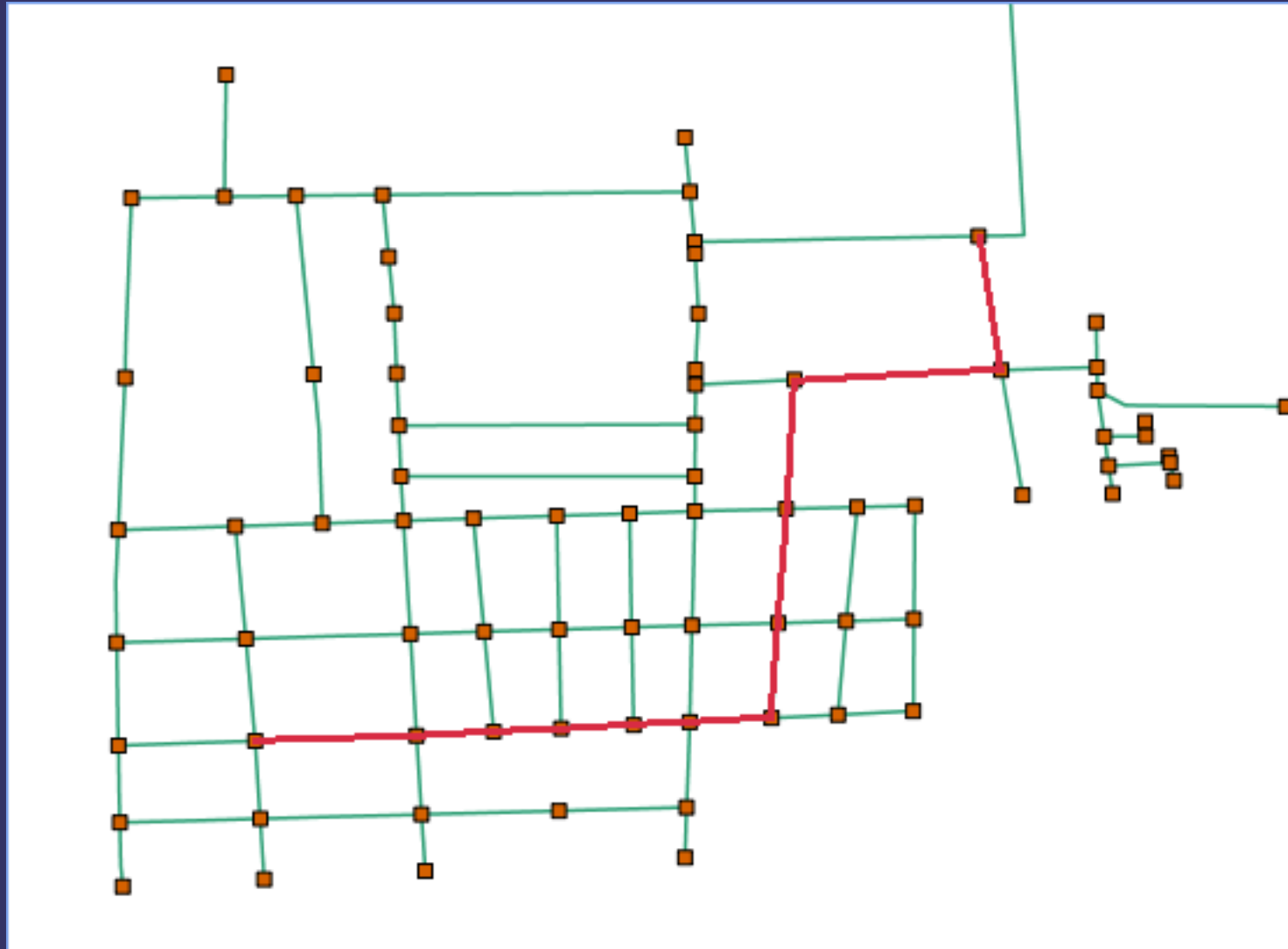


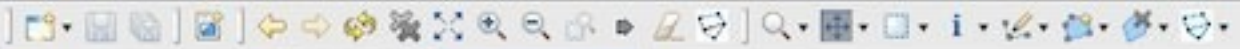
GSoC 2010

- Davide Savazzi
- Geotools & GeoServer
- Routing
- uDig



GSoC 2010 - Routing



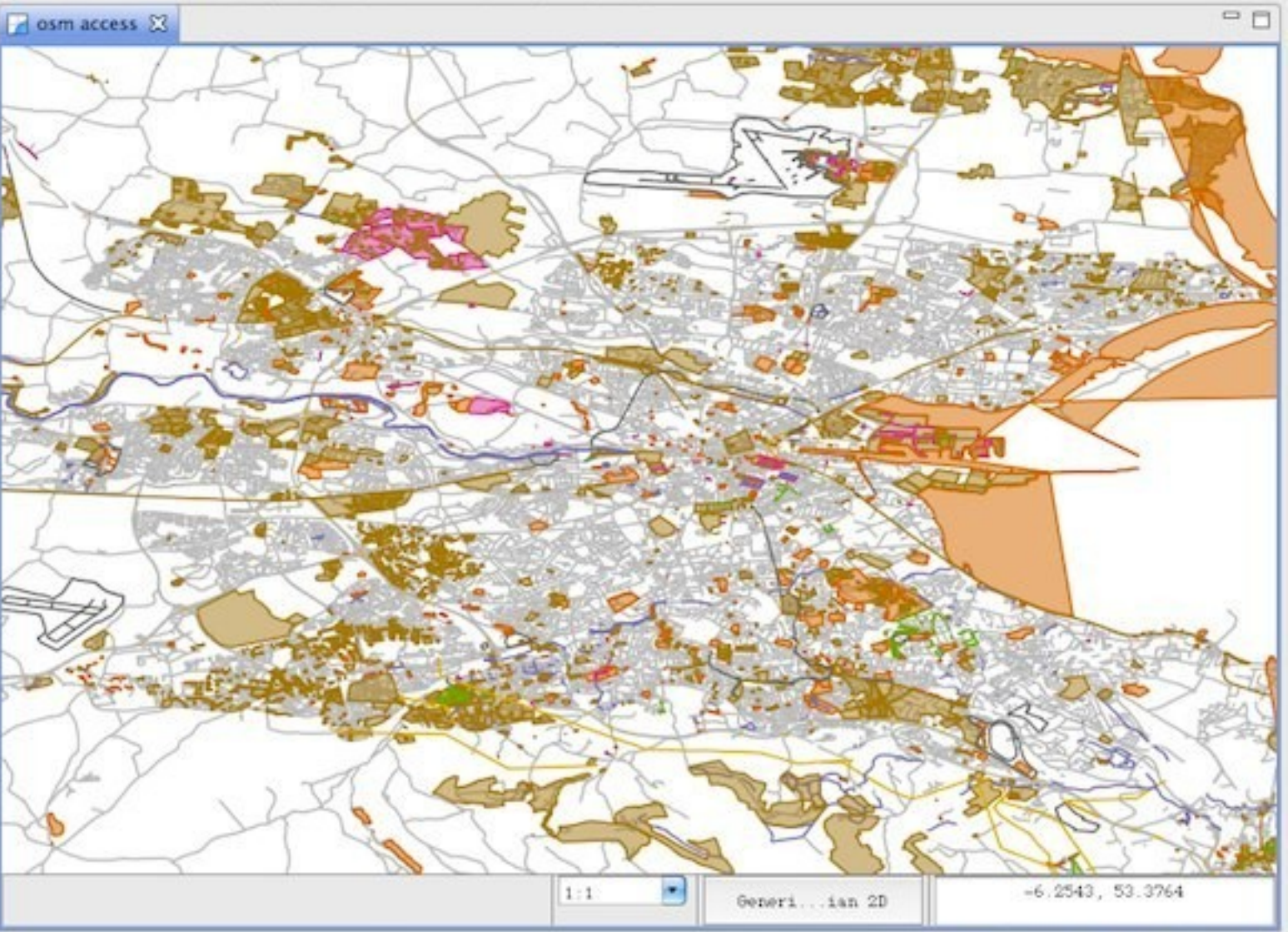


Projects

- project
 - osm access

Layers Bookma...

- osm natural
- osm motorcar
- osm layer
- osm landuse
- osm junction
- osm historic
- osm foot
- osm embankment
- osm cutting
- osm construction
- osm building
- osm bridge
- osm boundary
- osm barrier
- osm area
- osm amenity
- osm access
- osm oneway
- osm highway



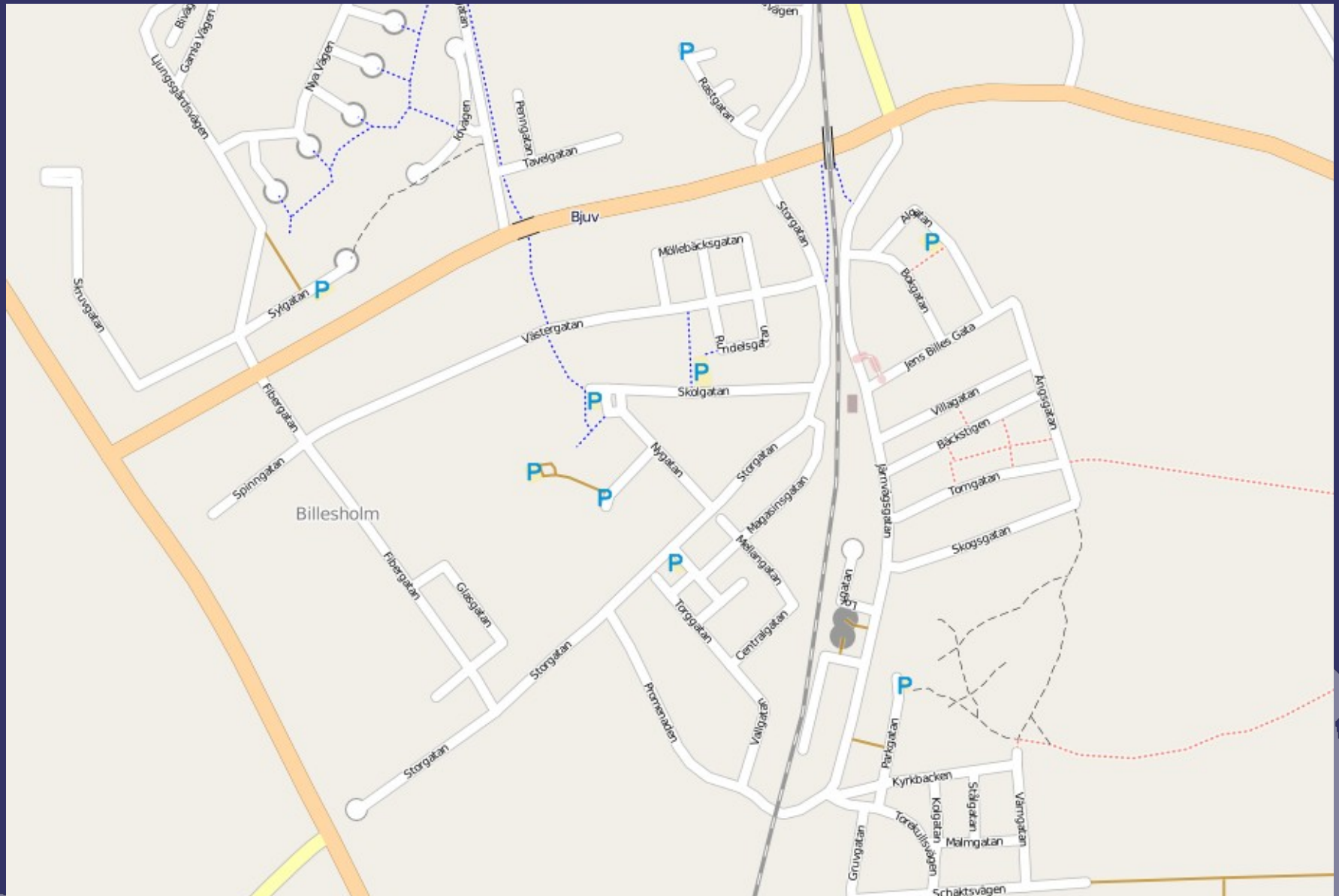
1:1 General...ian 2D -6.2543, 53.3764



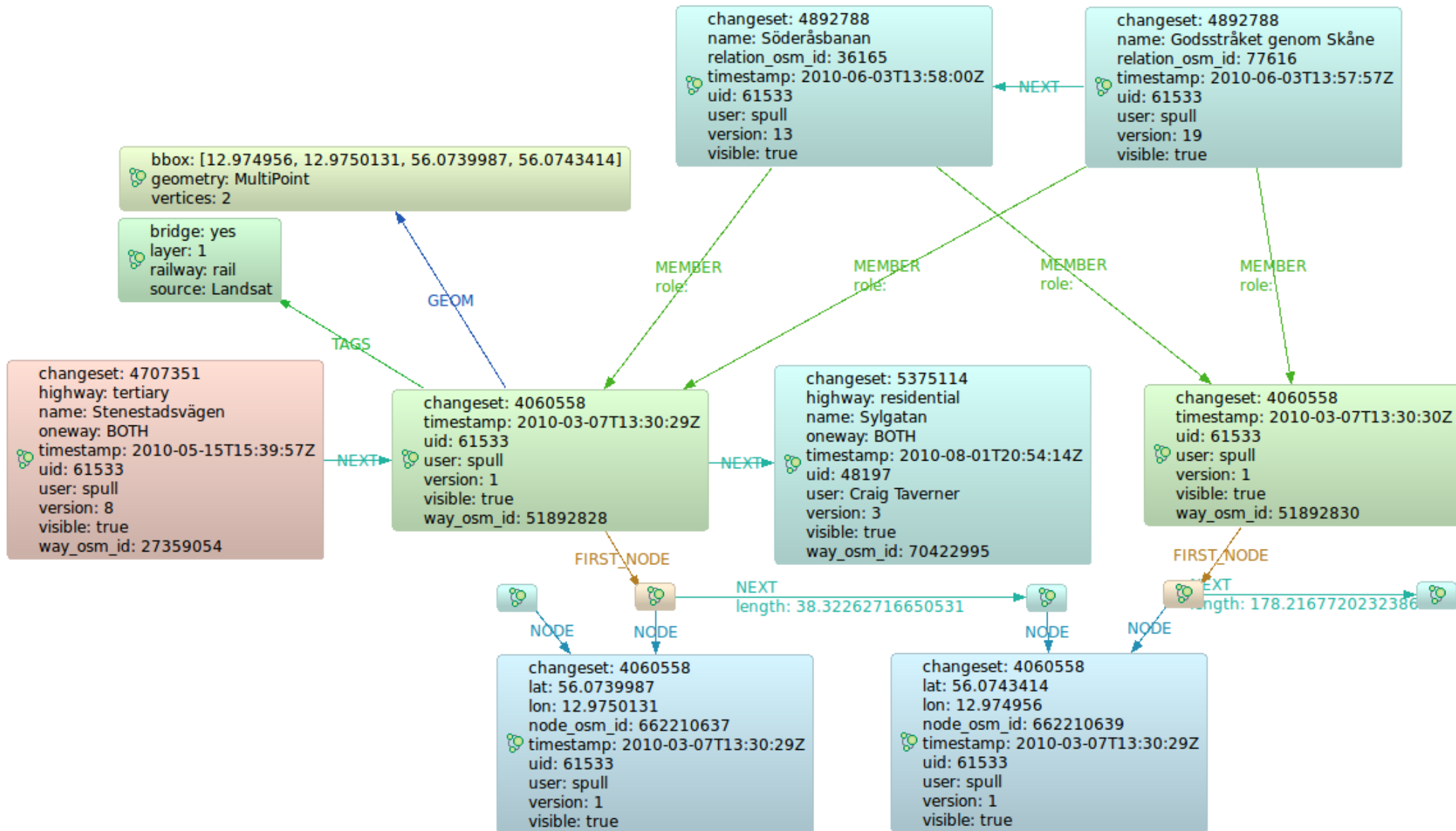
| | |
|----------|--------------------------------|
| Name:de | Petersdom |
| Name:en | Papal Basilica of Saint Peter |
| Name:nl | Saint Peter |
| Name:unl | Randstad, Sint-Peters-Basiliek |



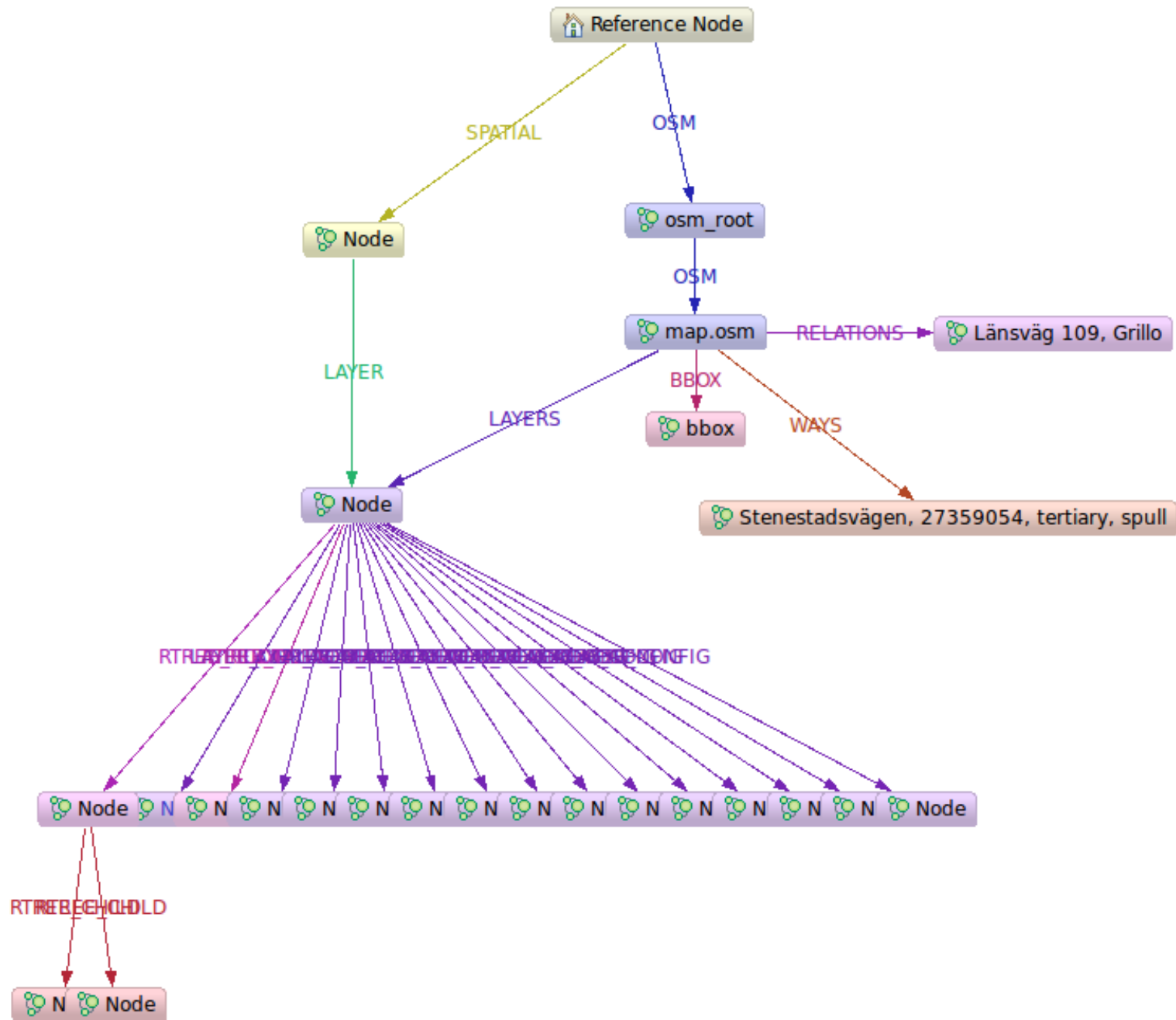
OpenStreetMap



OpenStreetMap



OpenStreetMap



Dynamic Layers

The screenshot displays a GIS application interface. On the left, the 'Layers' panel shows a list of dynamic layers with checkboxes. The 'highway-footway' layer is selected and highlighted in blue. The main map area shows a street network with various street names like Tavelgatan, Mollbecksgatan, and Jernvägsgatan. A thick blue line highlights a specific street segment. At the bottom, the 'Table' view shows a list of features with columns for FID, name, amenity, area, bicycle, highway, and railway. The row for 'highway-residential.43' is highlighted in yellow.

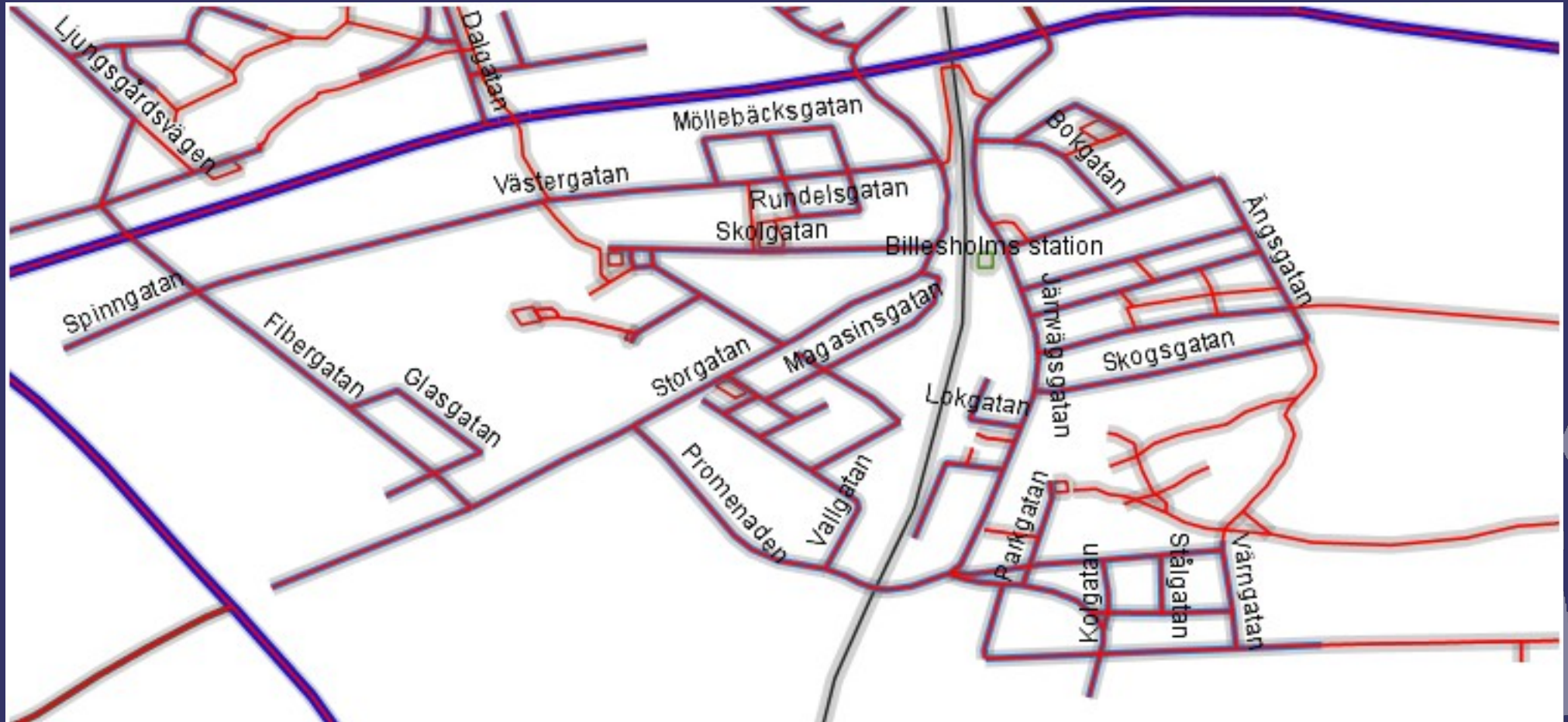
Layers Panel:

- highway-secondary
- highway-tertiary
- highway-residential
- highway-cycleway
- highway-footway
- highway-track
- highway-path
- highway-unclassified
- highway
- railway
- amenity-parking

Table View:

| FID | name | amenity | area | bicycle | highway | railway |
|------------------------|---------------|---------|------|---------|-------------|---------|
| highway-residential.40 | Skolgatan | | | | residential | |
| highway-residential.41 | Nygatan | | | | residential | |
| highway-residential.42 | Öngsgatan | | | | residential | |
| highway-residential.43 | Jernvägsgatan | | | | residential | |
| highway-residential.44 | Magasinsgatan | | | | residential | |
| highway-residential.45 | Villagatan | | | | residential | |
| highway-residential.46 | Centralgatan | | | | residential | |

Dynamic Layers



Future

◎ Editing

- Fine Grained Geotools Feature Editing
- OSM Editor

◎ OSM

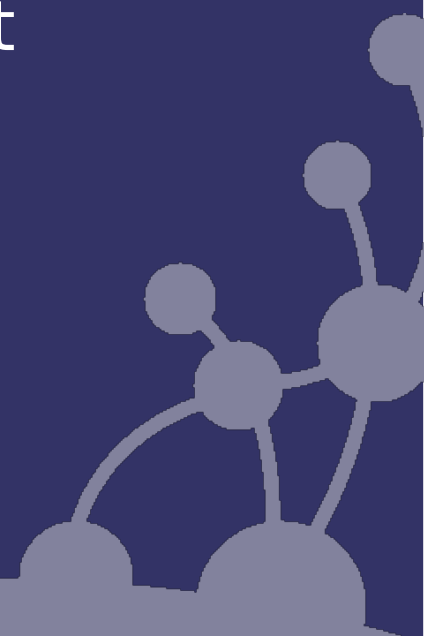
- Caching sub-graphs (desktop & mobile)
- More Dynamic Layers & Shapefile export

◎ Topology

- Persist all topological results in graph

◎ Benchmarking & Performance

- Improved indexing
- Composite index



API References

◎ Wiki, Code, API references

- http://wiki.neo4j.org/content/Neo4j_Spatial
- <http://github.com/neo4j/neo4j-spatial>
- <http://components.neo4j.org/neo4j-spatial>
- Mailing list: neo4j@lists.neo4j.org
- <http://neo4j.org/community/list/>

