Conceptualization and prototyping of an algorithm for providing geodata using the concept of vector tiling

The company INIT raised the topic for the thesis. For their customers, they want to achieve a fast solution for updating Geo-Information-System (GIS) data from Open Street Map (OSM) on their GIS-Server. The data should be pre-processed and made available throughout a web client, providing the possibility of spatial specific selection for the customer.

However, the research about vector tiles in general, available solutions, and scientific approaches showed no feasible integration of an existing format into the thesis, due to the lack of progress at the concept of feature-based vector tiles.

Three approaches were developed during the thesis for providing a possible solution. All three were developed inside the Feature Manipulation Engine (FME), which allowed a straightforward integration into the existing workflow at the company INIT. Two solutions were developed using the concept of tiling and concatenation. The third solution followed the concept of a “Central Feature” store, using PostGIS as a spatial database.

All solutions could be successfully implemented into the INIT Workflow and delivered satisfactory results when tested inside INITs GIS Tester. There were no significant errors detected in the map display or test routes.

Timing Results for the three solutions developed.

BW = Workflow bevor user selection | AW = Workflow after user selection

<table>
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<th>BW FME Dissolve 00:00:28</th>
<th>BW FME Edge 00:01:16</th>
<th>BW PostGIS 00:00:18</th>
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