A network based data store for geoscience data and its implementation

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Abstract

Pursuing our contribution to the EU project “ProMine” to develop a comprehensive model for geoscience data towards a geoscience information system of spatio-temporal geoscience data, our communication presents the concept as well as the state of its prototypical implementation with special emphasis on the network based infrastructure to handle spatial geological properties assigned to simplicial objects.

The project includes a generic database extension GST (geospatial and temporal datastore) actually applied to the database system PostgreSQL for three dimensional geodata. Analogously to the well known open source extension PostGIS for two dimensional geometries, our GST employs the Simple Feature Standard (SFS) defined by the Open Geospatial Consortium (OGC) for communication. In order to reduce the amount of data to be transferred to clients, extensions have been included to SFS+. Future developments of the model will include explicit consideration of topology and time.

To meet the requirements of interoperability, this system will include a webservice to provide geodata in a service architecture (SOA). The implementation of a web feature service (WFS) creates an interface to share geodata with any other system via GML and GeoSciML.

A client-software is implemented both as gOcad--plugin as well as standalone application. Thus it is possible to access the GST system, installed on a network server, from various clients simultaneously. Complementary implementing a WFS interface on client side will enable gOcad to retrieve data from any other web feature service. In general, implementig a WFS as top level interface allows to access the geodata stored with GST via the internet.

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