

WPS-BASED TECHNOLOGY FOR CLIENT-SIDE REMOTE SENSING DATA PROCESSING

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Server-side processing is principal for most of the current Web-based geospatial data processing tools. However, in some cases the client-side geoprocessing may be more convenient and acceptable. This study is dedicated to the development of methodology and techniques of Web services elaboration, which allow the client-side geoprocessing also. The practical objectives of the research are focused on the remote sensing data processing, which are one of the most resource-intensive data types.

The idea underlying the study is to propose such geoprocessing Web service schema that will be compatible with the current server-oriented Open Geospatial Consortium standard (OGC WPS standard), and additionally will allow to run the processing on the client, transmitting processing tool (executable code) over the network instead the data. At the same time the unity of executable code must be preserved, and the transmitted code should be the same to that is used for server-side processing. This unity should provide unconditional identity of the processing results that performed using of any schema. The appropriate services are pointed by the authors as a Hybrid Geoprocessing Web Services (HGWSs).

The common approaches to architecture and structure of the HGWSs are proposed at the current stage as like as a number of services prototypes. For the testing of selected approaches the geoportal prototype was implemented, which provides access to created HGWSs. Further works are conducted on the formalization of platform independent HGWSs implementation technique, and on the approaches to conceptualization of theirs safe use and chaining possibilities.

The proposed schema of HGWSs implementation could become one of the possible solutions for the distributed systems, assuming that the processing servers could play the role of the clients connecting to the service supply server.

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REFERENCES

1. Coene Y., Marchetti P.G., Smolders S., 2007. Architecture and Standards for a Distributed Digital Library of Geospatial Services. Third Italian Research Conference on Digital Library Systems (IRCDL 2007) Padova 29–30 January 2007 Proceedings pp. 52–60.
2. Governor J., Hinchcliffe D., Nickull D., 2009. Web 2.0 Architectures: What entrepreneurs and information architects need to know. O'Reilly, 276 p.