

Web Services in Geographic Information

Abstract of the thesis submitted to Universidade do Minho for the achievement of the Master's degree in Informatics, under the orientation of Jorge Gustavo Rocha.

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Braga, 2005

Open GIS Consortium has been promoting the multiplication of the Geo Web Services, especially thanks to the success of the Web Map Services and Web Feature Services. These services started giving the communication application-application a more operational use, allowing the exchange of information between clients and servers compliant with the standard, regardless of their internal specifications.

The scope of this work began with the study of the WS, namely the Geo Web Services in order to prove that only the syntactic interoperability¹ has been solved, i.e. the messages conform to the defined structure. Nevertheless, as it will be vindicated in this thesis, the interpretation and correct usage of the information requires a semantic analysis. The client's independent search and usage of Geo WS with relevant information is extremely difficult due to the lack of that semantic information.

It will be vindicated that a higher level of interoperability will be obtained by adding a semantic layer. Previous work on this topic and two proposals are presented. One of the proposals is still in process and arises from an experiment on semantic interoperability carried by OpenGIS Consortium. The other proposal totally developed within the scope of this thesis, aims to create and maintain an ontology to add to the stack of Geo Web Services. This last approach is demonstrated by a tool developed to search GI in Geo Web Services, exploring a common multi-language ontology.

Therefore, our aim is to contribute to the improvement of the interoperability between Geo WS, i.e. allowing new IG servers to be replaced or added in a dynamic way. This dynamic behaviour is necessary for example to enable mobile devices to discover and select servers with relevant information, while on movement.

¹ Capacity to communicate, execute programmes or data transfer between different functional units, without the user's concern about the specific characteristics of those units.