

BotanGIS: Cloud-oriented Solution for Thematic Maps of Botanical Garden

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Abstract. The last trend in publishing maps is the solution based on interactive web map application. The complex thematic map is consisting of number input phenomenons. Service-oriented architecture (SOA) allows to creating complex thematic map fully available by web browser, because the output thematic application is based on process of combination of multiple analytics maps. The SOA is an innovative architectural style of map designing from technological point of view. The application should be composed from independent layers as services. It is crucial that layers are provided as services, because the process of map generating is significantly more effective and faster. Based just on this solution the data are not duplicated and every change is reflected immediately. In fact the map is still updated without any process of regenerating map.

The traditional approach of providing and working with thematic maps has still numerous limitations, especially in relation to data and programs which user needs “physically” stored in own computer. The general trend in all areas of information technologies is relocation, sharing and distribution both data and programs via the Internet environment. This solution is possible especially due to cloud computing approach; moreover in GIS field it is supplemented by implementation of SOA. These topics were deliberately selected for their significant entry in recent years and a wide distribution in the current web GIS applications, because it allows to centralized management.

Due to SOA and cloud computing principles is possible to create live interactive web maps, which brings conventions from robust server solutions into thin flexible web clients. Moreover it provides higher comfort for developers as well as for users. The paper describes the revolutionary concept of thematic map customization with respect to SOA and cloud computing principles. The BotanGIS project has been developed as a case study. It is a unique solution, which combine interactive Geographical Information Sys-

tems for botany management necessities. It has been developed at Department of Geoinformatics, Palacký University, Olomouc as educational portal for students, visitors and employers of Botanical Garden in Olomouc. Each layer which enters into map is provides as a public service. In fact the original data are published by ArcGIS Server as a REST services, furthermore Web Map Services (WMS) were chosen for some basemap layers. The process of development and cartographic designing take advantage of cloud computing solution called ArcGIS Online. Due to chosen concept is possible to real-time centralized management. No installation process or server-side generating is required, it is fully available by web browser only.

Keywords: BotanGIS, cloud computing, services oriented architectures (SOA), Thematic Maps