ZOO-PROJECT: A PLATFORM FOR IMPLEMENTING GEOSPATIAL WEB PROCESSING SERVICES

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ABSTRACT

ZOO Project is an open source software that provides framework for implementing and chaining OGC Web Processing Services (WPS). ZOO-Kernel is made of a powerful and server-side application package that is able to load dynamic libraries and orchestrate geospatial services in several common programming languages.

This paper describes the ZOO platform (http://www.zoo-project.org) for online geoprocessing. ZOO differs for existing Open Source solutions in that it is a multi-language (C, Python, PHP, Perl etc.) thereby making it much easier to not only develop new Web-GIS but also use legacy models with minimal modification of source code. The ZOO platform consists of three main components. ZOO-Kernel handles and chains ZOO Services and is composed of a metadata file that can be parsed to provide appropriate responses to GetCapabilities and DescribeProcess. The ZOO-Kernel is also load Shared Service Objects (SSO) in the form of Dynamic library, Python modules, JAVA Class, PHP script etc. and execute specific functions upon receiving WPS ExecuteProcess requests. The ZOO-Services component consists of ready to use WPS Services based on powerful Open Source Software and libraries such as GDAL /OGR, GRASS GIS , CGAL and also stand-alone spatial modeling tools. The ZOO-Service suite presently consists of several WPS functions for geospatial data translation, analysis and visualization. The ZOO-API is a comprehensive server-side JavaScript library designed to simplify the WPS processes creation and chaining. The ZOO-API also uses a Proj4js adaptation for server-side re-projection, allowing to on-the-fly conversion of geospatial outputs into common vector formats (GML, KML, GeoJSON, etc) when needed.

ZOO-Platform will allow wide access to geoprocessing over the web and support wide variety of applications in resource, infrastructure and environmental management. Apart from presenting technical details of ZOO-Platform, the papers will demonstrate several examples of ZOO-Services and high-light the potential ZOO in geospatial Cloud Computing.