BUILDING A COMPLETE FREE AND OPEN SOURCE GIS INFRASTRUCTURE FOR HYDROLOGICAL COMPUTING AND DATA PUBLICATION USING GIS.LAB AND GISQUICK PLATFORMS

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ABSTRACT:

Building a complete free and open source GIS computing and data publication platform can be a relatively easy task. This paper describes an automated deployment of such platform using two open source software projects – GIS.lab and Gisquick. GIS.lab (`http://web.gislab.io`) is a project for rapid deployment of a complete, centrally managed and horizontally scalable GIS infrastructure in the local area network, data center or cloud. It provides a comprehensive set of free geospatial software seamlessly integrated into one, easy-to-use system. A platform for GIS computing (in our case demonstrated on hydrological data processing) requires core components as a geoprocessing server, map server, and a computation engine as eg. GRASS GIS, SAGA, or other similar GIS software. All these components can be rapidly, and automatically deployed by GIS.lab platform. In our demonstrated solution PyWPS is used for serving WPS processes built on the top of GRASS GIS computation platform. GIS.lab can be easily extended by other components running in Docker containers. This approach is shown on Gisquick seamless integration. Gisquick (`http://gisquick.org`) is an open source platform for publishing geospatial data in the sense of rapid sharing of QGIS projects on the web. The platform consists of QGIS plugin, Django-based server application, QGIS server, and web/mobile clients. In this paper is shown how to easily deploy complete open source GIS infrastructure allowing all required operations as data preparation on desktop, data sharing, and geospatial computation as the service. It also includes data publication in the sense of OGC Web Services and importantly also as interactive web mapping applications.