

SEMANTIC SERVICES GRID IN FLOOD-FORECASTING SIMULATIONS

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Abstract. Flooding in the major river basins of the Central Europe is a recurrent event affecting many countries. Almost every year, it takes away lives and causes damage to infrastructure, agricultural and industrial production and severely affects socio-economic development. Recurring floods of the magnitude and frequency observed in this region is a significant impediment, which requires rapid development of more flexible and effective flood-forecasting systems. In this paper we present design and development of the flood-forecasting system based on the Semantic Grid services [3]. We will highlight the corresponding architecture, discovery and composition of services into workflows and semantic tools supporting the users in evaluating the results of the flood simulations [15]. We will describe in detail the challenges of the flood-forecasting application and corresponding design and development of the service-oriented model, which is based on the well known Web Service Resource Framework (WSRF). Semantic descriptions of the WSRF services will be presented as well as the architecture, which exploits semantics in the discovery and composition of services. Further, we will demonstrate how experience management solutions can help in the process of service discovery and user support. The system provides a unique bottom-up approach in the Semantic Grids by combining the advances of semantic web services and grid architectures.

Keywords: web services, grid services, workflow, discovery, composition, annotation