UK Workflow Research

The UK Joint Information Systems Committee (JISC) is responsible for funding research into the provision of cutting-edge information services for the UK academic community. In 2006 JISC commissioned the "Grid/OGC Collision Programme" to investigate integration of Grid computing and web services based on OGC standards. The programme involved two themes: workflows and security, leading to two projects respectively entitled SAW-GEO (Semantically-Aware Workflow Engines for Geospatial Web Service Orchestration) and SEE-GEO (Secure Access to Geospatial Services).

The School of Civil Engineering and Geosciences at Newcastle University and the North East Regional e-Science Centre (NEReSC) lead the SAW-GEO initiative, Newcastle University being an academic member of the OGC. SAW-GEO addresses the potential of workflow engines in the orchestration of OGC services, and will demonstrate the capability of such systems in real-world applications. An installation of the Globus Toolkit (www.globus.org) sits between the ActiveBPEL (www.activebpel.org) workflow engine, Geoserver (www.geoserver.org) and the 52 North (http://52north.org) Web Processing Service (WPS) container. The Globus Toolkit is a popular Grid service container based on Open Grid Services Architecture (OGSA). As the name implies, ActiveBPEL uses the Business Process Execution Language (BPEL), now a standard of the Organisation for the Advancement of Structured Information Standards (OASIS), of which OGC is a member. Geoserver is a free and open-source OpenGIS web service container offering support for Web Feature Services, Web Coverage Services and Web Map Services.

One of the obstacles to widespread adoption of Grid technologies has always been usability of Grid applications. The SAW-GEO portal was developed to encourage uptake by offering workflow deployment and invocation. The geoportal used Asynchronous Javascript And XML technologies (AJAX) and includes an OpenLayers (www.openlayers.org) web map client. A user can create a BPEL workflow using a standalone editor and deploy the workflow in the workflow engine through the SAW-GEO portal, thereafter selecting a layer from a WFS or WCS and passing it to the workflow. Workflow enactment is invoked through an AJAX function, allowing the user to continue exploring the web map as the workflow is enacted in the background. During enactment a Grid service manages access to data between the various services taking part in the workflow.

The SEE-GEO initiative is led by Edina, the University of Edinburgh's national data centre, an academic member of OGC. SEE-GEO is an investigation into means of making Geospatial data securely available on data and computational grids. The underlying theme of this research is to link together work undertaken by the Grid, Shibboleth (http://shibboleth.internet2.edu) and Geographic Information communities to offer users access to geospatial data through the National Grid Service (NGS), also a JISC-funded initiative. SEE-GEO will demonstrate the use of Shibboleth to access Geospatial web services securely using open interoperability standards running on the NGS.

Both projects started in October 2006, with SAW-GEO scheduled for completion in May 2008 and SEE-GEO in August 2008. For more information, see: http://edina.ac.uk/projects/seesaw/sawgeo/presentationsandworkshops.html.

https://www.gim-international.com/content/article/uk-workflow-research