

## Grid-based Information Architecture for iSERVO International Solid Earth Research Virtual Organization

Geoffrey Fox

### Abstract

We describe a Web service (Grid) architecture for Earthquake science to support iSERVO – the International Solid Earth Research Virtual Organization. We show how OGC (Open Geospatial Consortium) standards including the WMS (Web Map Service) and Web Feature Service (WFS) provide both specific functionality and also specifies an information architecture. Key OGC compatible functionalities in iSERVO include GIS (Geographical Information Systems) services and Sensors specified through SensorML. We take all the Geoscience specific services and implement with interfaces compatible with WFS. This allows data, sensors and simulations to be supported in a uniform fashion and to be joined seamlessly in complex workflows. We use advanced messaging software to support information being streamed in real time and to allow a powerful publish-subscribe model that allows just information of interest to be transmitted to services or users who express their interest. We generalize this model to other areas including Chemical Informatics and the analysis of physics accelerator data. We comment on the relevance of these ideas to the automatic analysis of document repositories to find papers containing relevant information.