

SC07 INTEROPERABILITY DEMONSTRATIONS USING OGF STANDARDS AND DRAFTS

High Performance Computing is the largest and most mature application for Grid technologies. Many OGF members and technical contributors are participating at SC07, including a number of OGF working groups and member organizations that will be hosting interoperability demonstrations using OGF standards, standards in development, and implementations:

High Performance Computing Profile (HPCP) OGF Publication GFD-R.114

Altair Engineering booth #720 **EGEE/OMII-Europe booth #2523** **Microsoft booth #1407**
Platform Computing booth #814 **UK eScience/OMII-UK booth #571** **NorduGrid booth #173**
INFN booth #2423 **KnowARC booth #182** **Univ. of Virginia eScience Group**

HPCP is a proposed standard for grid interoperability in HPC environments that references existing specifications including OGF Job Submission Description Language (JSDL), OGF OGSA Basic Execution Service (BES), and WS-I Basic Profile. HPCP allows application and middleware software providers to target multiple HPC systems via a single protocol leveraging standard Web services protocols and development environments. The demonstration shows interoperability between multiple 3rd party resource managers and Web services platforms using the HPC Profile. Tasks can be submitted from clients located in one booth to compute clusters located elsewhere via the HPC Basic Profile specification. The demonstration includes the submission of tasks to a resource manager, the retrieval of a task's execution status and the retrieval of information about an HPC system's resources. The demonstration shows how organizations can benefit by integrating commercial and open source products into existing and new HPC systems, interfacing with HPC systems at remote locations, and by leveraging generic HPC utilities.

Grid Interoperation Now (GIN)

NIC - John von Neumann Institute booth #2633 **EGEE booth #2523** **NorduGrid booth #173**
UK eScience/OMII-UK Booth #571 **Hungarian Grid Competence Centre booth #182**

Many Grid projects offer production services to end-users with an increasing number of application projects that require access to a wide variety of resources and services in multiple Grids. GIN organizes, manages and demonstrates a set of interoperation (defined as what needs to be done to get production Grids to work together as a fast short-term achievement using as much existing technologies as available today) efforts among production Grid projects and e-Science infrastructures using computational or storage-related resources in multiple Grids. Demonstrations of multiple applications using OGF standards are planned. See the separate GIN SC07 data sheet or contact Morris Riedel (m.riedel@fz-juelich.de) for information.

Simple API for Grid Applications (SAGA) OGF Publication GWD-R.90

UK eScience/OMII-UK Booth #571 **IBM Booth #1215** **LSU Booth #2441**

SAGA is a high level, simple to use, application-oriented API for grid application development. The SAGA specification describes simple API's for commonly needed operations for file transfer and access, replica management, stream based interprocess communication, job submission and monitoring, and client side RPC calls. At SC07 the SAGA group will demonstrate a functioning C++ implementation of many of the core packages and a usable SAGA based Grid shell. Contact Shantenu Jha (sjha@cct.lsu.edu) or Ole Christian Weidner (oweidner@cct.lsu.edu) for information.

Information Dissemination (INFOD)

OGF Publication GFD-R.110

Oak Ridge National Laboratory booth #538

INFOD channels the flow of data from thousands of sources to thousands of destinations flexibly. Content flow is tailored to achieve context aware delivery of "Valued Information at the Right Time" by allowing flexible community of interest vocabularies as well as by enabling the infrastructure to react dynamically to changing user requirements. Application examples include stock ticker alerting to threat/monitoring sensors and actuators to matching buyers and sellers in a retail context. A reference implementation being led by the University of Tennessee in collaboration with research partners including ORNL, Oracle, IBM, and RAL will be described as part of the SensorNet presentation. Contact Mallikarjun (Arjun) Shankar (shankarm@ornl.gov) for information.

Grid Remote Procedure Call (GridRPC)**OGF Publication GFD-R.52****AIST Booth #765**

GridRPC is a programming model based on a Remote Procedure Call (RPC) mechanism tailored for the Grid. The programming model provided by GridRPC is that of standard RPC plus asynchronous, coarse-grained parallel tasking. The GridRPC API specification clearly and unambiguously defines the syntax and semantics for GridRPC, thereby enabling a growing user base to take an advantage of multiple implementations. This demonstration shows how to develop and execute flexible, robust, and efficient Grid applications using Ninf-G, a reference implementation of the GridRPC API. The demonstration is targeted at application developers who are interested in developing large-scale sustainable Grid applications. Experimental results of large-scale molecule simulations on AIST-TeraGrid will also be presented. Contact Yoshio Tanaka (yoshio.tanaka@aist.go.jp) for information.

Resource Namespace Service (RNS)**OGF Publication GFD-R.101****Center for Computational Sciences, University of Tsukuba Booth #2651**

RNS provides general hierarchical namespace that manages name-to-resource mappings. It is extensible and can be used by Grid file system, execution management, and various application domains. Contact Osamu Tatebe (tatebe@cs.tsukuba.ac.jp) for information.

Grid Storage Management (GSM)**OGF Publication in Development****Lawrence Berkeley National Laboratory Booth #351**

Large scale Grid computing requires dynamic storage allocation and management of large numbers of files. However, storage systems vary from single disk pool to complex mass storage systems. A standard middleware specification for dynamic storage reservation and management of the files in the reserved spaces has been developed over the last seven years - referred to as the Storage Resource Management (SRM) specification. This demo will show the interoperability of different SRM implementations around the world based on the specification. It will show the ability to put, get, and copy files between any of these storages systems using the uniform SRM interfaces. Many of these SRM-fronted systems are now used in large Grid projects, including the high energy physics Worldwide LHC Computing Grid Project, Open Science Grid, and the Earth System Grid project. Contact Alex Sim (asim@lbl.gov) or Arie Shoshani (shoshani@lbl.gov) for information.

Grid Information Retrieval (GIR)**OGF Document in Development****KISTI Booth #2933****Wednesday 11/14 at 11:30 AM**

GIR is for distributed search in a grid environment, the main elements of which are query processors, indexing services, and collection managers. GIR provides access to relatively small collections which are not necessarily accessible to public Web crawlers. Because the GIR collections can be based on different information retrieval software, the search experience can be more highly customized for particular users, searches, or data types. Members of the OGF's Grid Information Retrieval Working Group will give a presentation and discussion of a new GIR prototype on Wednesday the 14th at 11:30 AM. Information retrieval will take place between several systems at KISTI (Korea) and the Arctic Region Supercomputing Center (Alaska). Contact Greg Newby (newby@arsc.edu) or Yangwoo Kim (ywkim@dongguk.edu) for information.

Network Mark-up Language (NML) and Network Measurements (NM) OGF Documents in Development**Internet2 Booth #2815**

This demo is implemented in three parts:

perfSONAR is a network measurement framework based on schemata and data models from both the NM-WG (representing, storing, exchanging network measurements) and NML-WG (describing the topology of the network). This demonstration will show various performance visualizations across multiple deployments of the software.

Internet2 DC Network (DCN) is a revolutionary optical circuit network that provides dedicated bandwidth using standards-based technologies such as topology descriptions developed in conjunction with NML-WG and monitoring provided by perfSONAR, an adopter of the NM-WG prototype standards. The demonstration will illustrate the dynamic creation of circuits, transfer of data, and review of performance during the life of the process. **Phoebus** is an environment for high-performance optical networks that seamlessly creates various adaptation points, called Phoebus Gateways, in the network to maximize performance. The standard network schema and ontologies being designed in the NML-WG are a key vehicle for representing and exchanging this information. Contact Eric Boyd (eboyd@internet2.edu), Rick Summerhill (rrsum@internet2.edu) and Martin Swany (swany@cis.udel.edu) for information.