Grid Resources for Industrial Applications

GRIA

Scope

The aim of the GRIA project has been to increase the usability of Grids for businesses and industrial users. GRIA devised business models and processes that make it feasible and cost-effective to offer and use computational services, securely, in an open Grid marketplace. Since GRIA was aimed at today's business users, including HPC providers and SME clients, it provided solutions that can be used today, and which are based on proven, stable and secure technologies. GRIA software has been tested using real industrial applications by the project's commercial partners. These include the Virtual Digital Studio, by KINO, and the CESI's applications for the structural design, construction and maintenance of hydroelectric and thermal generating plants.

Innovation and Functionality

GRIA's Grid infrastructure uses standard Web Service technologies. Emphasis has been put on the support of well defined B2B business processes and the inclusion of today's legacy applications, with immediate availability. The infrastructure's key functionalities include: basic file storage and processing, accounting, and Quality-of-Service for managing service load.

Positioning

The GRIA project has focused on the use of Grids in business and industry. It has aimed to provide immediate solutions for use by commercial customers. To this end, the GRIA infrastructure is based on stable Web Services standard specifications.

GRIA Project User Applications

Finite element analysis in civil engineering (CESI)

Virtual digital studio (KINO)

Contract number
IST-2001-33240

Type of project
Cost-shared Research and Technological Development Action

Project coordinator
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Project website
http://www.gria.org

Maximum Community contribution to project
EUR 2 020 000

Project start date
1 December 2001

Duration
36 months

Information Society

European Commission

Target Users and User Benefits

With the aim of serving the business user, GRIA's current clientele includes applications for two communities of users in particular:

- KINO users: clients contributing to the development of commercials, using a virtual 3D studio for digital rendering with post-production and animation; and
- CESI users: structural engineers in the hydroelectric and thermal generation sector.

Maturity and Availability of Tools

The GRIA project has been completed and evaluated by the project partners and a select group of external end-users. Version 2 of the GRIA Middleware has been running at partner sites since June 2004. Version 3 of the Middleware was released in September 2004, with an open source LGPL license.

Compliance with Standards

GRIA software is based on and uses proven Web Services standard specifications and tools. In particular, it complies with the WS-I 1.0 Basic Profile and Basic Security Profile. Security is ensured by the use of a PKI infrastructure based on the X.509 standard and is not compliant with GSI. Future developments of the GRIA Middleware may include new developments from the WSRF family of Web Services specifications, when they become standard.

Interoperability

GRIA software uses Web Services interfaces and is, thus, able to interoperate with other systems through these interfaces. The GRIA Middleware makes use of the Apache Tomcat Java Servlet Container and the Apache Axis Web Services' SOAP implementation. In addition, it uses the WS-I 1.0 Basic Profile and Basic Security Profile.

Many common components from Grid projects of the UK e-Science programme and the European GEMSS Grid project have been reused within GRIA. The GRIA Middleware does not comply with the GSI, OGSI or WSRF specifications as they are either obsolete or immature.

Value-Added Services and Next Generation Development

Since the project is officially complete, some commercial services are already available. These include software support and customisation from IT Innovation of Southampton University, and selected application services support from Dolphin.

Future developments are planned in future European FP6 Grid projects, specifically the SIMDAT and NextGRID projects. These developments will address new features, such as "Semantic Firewall" authorisation, as well as architectural convergence with the European report on "Next Generation Grids".

Project Partners

Organisation name and country

DOLPHIN INTERCONNECT SOLUTIONS (DOLPHIN)	NO
CENTRO ELETTROTECNICO SPERIMENTALE ITALIANO (CESI) - GIANCINTO MOTTA S.P.A (EX-ENEL-HYDRO)	IT
INSTITUTE OF COMMUNICATION AND COMPUTER SYSTEMS AT THE NATIONAL TECHNICAL UNIVERSITY OF ATHENS (NTUA)	GR
INTELLIGENCE, AGENTS AND MULTIMEDIA GROUP, THE UNIVERSITY OF SOUTHAMPTON (IAM)	UK
IT INNOVATION CENTRE - UNIVERSITY OF SOUTHAMPTON	UK
KINO ANON COMPANY OF CINEMA AND TV MOVIES	GR