Kepler 2.2.x Serpens Suite
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This document contains introductory material to Serpens modules.

This paper covers Serpens 2.2 release

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gLite

From official website http://glite.cern.ch/:

gLite (pronounced "gee-lite") is the next generation middleware for grid computing. Born from the collaborative efforts of more than 80 people in 12 different academic and industrial research centers as part of the EGEE Project, gLite provides a framework for building grid applications tapping into the power of distributed computing and storage resources across the Internet.

The gLite distribution is an integrated set of components designed to enable resource sharing. In other words, this is middleware for building a grid.

The gLite middleware was produced by the EGEE <http://www.eu-egee.org> project and it is currently being developed by the EMI <http://www.eu-emi.eu> project. In addition to code developed within the project, the gLite distribution pulls together contributions from many other projects, including LCG <http://lcg.web.cern.ch/LCG/> and VDT <http://vdt.cs.wisc.edu/components/vdt.html>. The distribution model is to construct different services ('node-types') from these components and then ensure easy installation and configuration on the chosen platforms (currently Scientific Linux <https://www.scientificlinux.org> versions 4 and 5, and also Debian 4 <http://www.debian.org> for the WNs).

gLite middleware is currently deployed on hundreds of sites of different DCIs and enables global science in a number of disciplines, notably serving the LCG <http://lcg.web.cern.ch/LCG/> project.

In order to use Serpens module for gLite, one needs an access to a Roaming Access Server. It is a middle layer software between grid infrastructure and client libraries/applications. RAS has its own configuration which lets administrators define options and infrastructure specific features. It has all grid certificates and software installed. RAS communicates with grid services and manages connections to storages and workload managers.

UNICORE

From official website http://unicore.eu:

UNICORE (Uniform Interface to Computing Resources) offers a ready-to-run Grid system including client and server software. UNICORE makes distributed computing and data resources available in a seamless and secure way in intranets and the internet.

UNICORE has special characteristics that make it unique among Grid middleware systems. The UNICORE design is based on several guiding principles, that serve as key objectives for further enhancements.

***Open source** under BSD license.*

***Standards-based**, conforming to the latest standards from the Open Grid Forum (OGF), W3C, OASIS, and IETF, in particular the Open Grid Services Architecture (OGSA) and the Web Services Resource Framework (WS-RF 1.2).*

***Open and extensible** realized with a modern Service-Oriented Architecture (SOA), which allows to easily replace particular components with others.*

***Interoperable** with other Grid technologies to enable a coupling of Grid infrastructures or the users needs*

***Seamless, secure, and intuitive** following a vertical, end-to-end approach and offering components at all levels of a modern Grid architecture from intuitive user interfaces down to the resource level. Like previous versions UNICORE 6 seamlessly integrates in existing environments.*

***Mature security mechanisms** adequate for the use in supercomputing environments and Grid infrastructures. X.509 certificates form the basis for authentication and authorisation, enhanced with a support for proxy certificates and virtual organisations (VO) based access control.*

***Application integration** mechanisms on the client, services and resource level for a tight integration of various types of applications from the scientific and industrial domain.*

***Various operating and batch systems** are supported on all layers, i.e. clients, services and systems; Windows, MacOS, Linux, and Unix systems as well as different batch systems are supported such as LoadLeveler, Torque, SLURM, LSF, OpenCCS, etc.*

***Implemented in Java** to achieve platform independence.*

Serpens module for UNICORE works as a standalone project and does not require access to Roaming Access Server. Actors remotely call a UNICORE registry and directly communicates with UNICORE machines.

Vine Toolkit

From official website http://vinetoolkit.org:

Vine is a modular, extensible Java library that offers developers an easy-to-use, high-level Application Programmer Interface (API) for Grid-enabling applications. Vine can be deployed for use in desktop, Java Web Start, Java Servlet 2.3 and Java Portlet 1.0 environments with ease. Plus Vine supports a wide array of middleware and third-party services, so you can focus on your applications and not lose focus on the Grid!

Supported Middleware and Standards:

- *QosCosGrid*
- *BES*
- *gLite3*
- *Globus Toolkit 4.0.x, 4.2.1*
- *GRIA 5.3*
- *Unicore 6*
- *JSDL*
- *Storage Resource Broker*
- *Storage Resource Manager*
- *RUS*
- *OGSA-DAI 2.2*
- *Active Directory*

This Serpens module requires a Roaming Access Server to work properly.

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