

QTI CPK CVIQP'FGXGNQRPI 'I TIF'EQO RWWPI 'VQQNMKVUCPF'HT'CO GY QTM

To achieve a successful adoption of Grid Computing requires an adequate infrastructure, security services, key services, applications, and portals. Let us now explore and identify some of the most prominent organizations responsible for the toolkits, middleware, and framework for Grid Computing.

Globus

The Globus ^[4] project is a multi-institutional research effort to create a basic infrastructure and high-level services for a computational grid. A computational grid is defined as hardware and software infrastructure that provides dependable, consistent, pervasive, and inexpensive access to high-end computational capabilities (Foster & Kesselman, 1998). They have now evolved into an infrastructure for resource sharing (hardware, software, applications, and so on) among heterogeneous virtual organizations. These grids enable high creativity by increasing the average and peak computational performance available to important applications regardless of the spatial distribution of both resources and users.

Globus Resource Allocation Manager (GRAM)

GRAM provides resource allocation, process creation, monitoring, and management services. GRAM simplifies the use of remote systems by providing a single standard interface for requesting and using remote system resources for the execution of "jobs." The most common use of GRAM is the remote job submission and control facility. However, GRAM does not provide job scheduling or resource brokering capabilities. We could see that the job scheduling facilities are normally provided by the local system. GRAM uses a high-level Resource Specification Language (RSL) to specify the commands and maps them to the local schedulers and computers.

Grid Security Infrastructure (GSI)

GSI provides a single-sign-on, run anywhere authentication service with support for local control over access rights and mapping from global to local user identities. While keeping the existing GSI mechanisms, the current GSI3 standard is in alignment with the Web service security standards by defining a GSI profile for WS-Security. ^[5]

Information Services

A GT3 Information service provides information about grid resources, for use in resource discovery, selection, and optimization.

The Monitoring and Discovery Service (MDS) is an extensible grid information service that combines data discovery mechanisms with the Lightweight Directory Access Protocol (LDAP). The MDS provides a uniform framework for providing and accessing system configuration and status information such as computer server configuration, network status, or the locations of replicated datasets. The current GT3 framework merges the MDS with the XML data framework for better integration with existing Web services and OGSA.

The latest Globus Toolkit (GT3) is a java implementation of the OGSI specification. The discussion on the architecture and programming model of the GT3 infrastructure software and the details on the high-level services are deferred to the last section of this book.

Source : <http://elearningatria.files.wordpress.com/2013/10/ise-viii-grid-computing-06is845-notes.pdf>