

# VJ GI TÆ 'EQO RWWPI 'CP CVQO [

Internet computing emerged as the strong motivating factor to decentralize these computing facilities. As of now, the Internet, and hence wide area networking, has become the ubiquitous standard for the electronic world. By the beginning of this century, the wide area distributed computing discipline has taken a new turn with more emphasis on controlled and coordinated resource sharing among dynamic groups of organizations and/or individuals.

In Chapter 2, we discuss the contributions of the major Grid Computing organizations that are working on an agreeable open process, standardization, and interoperable implementation of the grid to enable the community for manageable resource sharing and coordination.

## **Grid Computing Organizations and Their Roles**

Grid Computing organizations and their roles can be broadly classified into four categories based on their functional role in Grid Computing. These roles are best described as:

Organizations developing grid standards and best practices guidelines

Organizations developing Grid Computing toolkits, frameworks, and middleware solutions

Organizations building and using grid-based solutions to solve their computing, data, and network requirements

Organizations working to adopt grid concepts into commercial products, via utility computing, and Business on Demand [1] computing

## **Organizations Developing Grid Standards and Best Practice Guidelines**

These organizations are responsible for refining the grid standardization process and defining the best practice guidelines for the scientific and industry usage of grid.

The most prominent among such organizations is Global Grid Forum (GGF). There are other standards organizations working closely with GGF in this process, including OASIS (Organization for the Advancement of Structured Information Standards), W3C (World Wide Web Consortium), IETF (the Internet Engineering Task Force), and DMTF (the Distributed Management Task Force).[2] GGF is mainly working in the Grid arena while others have more

broad-based programs covering other parts of the computing industry such as network, resource, business, and Internet standards. For example, W3C is working on the standardization of Web and Web-related technologies, including Web services, eXtensible Markup Language (XML), and Semantic Web. GGF is working closely with these organizations in defining the grid standards aligned with the other open standard processes and providing inputs and requirements to other standards organizations.

### **Organizations Building and Using Grid-Based Solutions to Solve Computing, Data, and Network Requirements**

These organizations and individuals are the real users of Grid Computing. They are benefiting from resource sharing and virtualization. As of now these projects are mostly in the scientific areas. We will be discussing some of the major grid projects and infrastructures around the world. In general, these grid users need:

- On-demand construction of virtual computing system with the capabilities to solve the problems at hand including scarcity of computing power, data storage, and real-time processing
- A provision for collaborative visualization of the results of the above process
- A dynamic construction of virtual organizations to solve certain specific problems at hand

### **Commercial Organizations Building and Using Grid-Based Solutions**

In the last couple of years we have seen a tremendous commercial interest in Grid Computing solutions. These commercial aspects are centered on the concept of resource sharing and resource virtualization principles.

Every computing resource including clusters, servers, blades, operating systems, and applications are viewed as utilities. The advancement of Grid Computing through the principles of open technologies, standard-based integration, and hardware and software technology maturity are behind these utility concepts.