

Digital Libraries over the Grid: Heaven or Hell? (Panel Description)

Donatella Castelli¹ and Yannis Ioannidis²

¹ ISTI - CNR, Pisa, Italy

`Donatella.castelli@isti.cnr.it`

² Dept. of Informatics and Telecommunications,
University of Athens, Hellas (Greece)

`yannis@di.uoa.gr`

The last decade has seen unprecedented advances in network and distributed-system technologies, which have opened up the way for the construction of global-scale systems based on completely new conceptions of computation and sharing of resources. The dream of integrating unlimited levels of processing power, unlimited amounts of information, and an unlimited variety of services, and offering the entire package in a reliable and seamless fashion to widely distributed users is quickly becoming reality. As Digital Libraries move towards more user-centric, pro-active, collaborative functionality and application diversity, they should be among the first to take advantage of such environments. The long-term vision of the field for creating Dynamic Universal Knowledge Environments calls for intensive computation and processing of very large amounts of information, hence, the needs for the appropriate distributed architecture are pressing.

Grid technologies are at the forefront of these developments. While much has been written about computation in the Grid environment, information and service management of the kind required by Digital Libraries has received very limited attention in the literature. Nevertheless, the Grid offers tremendous opportunities in that direction and at the same time poses major technical challenges in the area as well. The goal of this panel discussion is to identify these opportunities and challenges and examine whether the positive aspects of the Grid outweigh the negative ones or vice versa. In this direction, the panelists are called to answer some of the following questions:

- Is there any benefit in using the Grid technologies for supporting Digital Libraries? Are there new key Digital Library functionalities that can be enabled by the use of these technologies? Are there application areas that may profit from Digital Libraries on the Grid?
- Is there new research to be done for Digital Libraries over the Grid? Are there any new problems that arise from managing general documents over the Grid? For example, are there new problems with respect to security, heterogeneous information integration, document search, or workflow management?

- Do classical problems require new solutions or do conventional approaches work well in the Grid environment? For example, how does one address issues of document indexing, information retrieval, or document composition?
- How does the Grid compare with other architectures, e.g., peer-to-peer or service-oriented architectures for Digital Libraries?
- Is the Grid middleware already developed or under development (e.g., Condor, Globus, Unicore) adequate for supporting the required Digital Library functionality? What about the currently forthcoming distributed infrastructures, e.g., EGEE?
- Are there any particular difficulties when dealing with management of any particular information form expected to be found in Digital Libraries over the Grid, e.g., differences between relational and XML data or free text, or differences between cultural information and health information?