The Potential of Grid for Mobile eLearning

Mobile eLearning (or mLearning) has emerged over the recent years as a new learning paradigm taking advantage of advances in the areas of mobile and pervasive computing, and wireless communications and networking. Simultaneously in the distributed computing area, the Grid has adopted a Service Oriented Architecture (SOA) approach for large scale and secured resource sharing across virtual communities and organisations over the Internet.

In this paper we examine the combination of these two areas and argue that the Grid offers not only advantages for eLearning, but specific advantages for mobile eLearning. Compared to standard desktop computers, mobile devices are characterized by many limitations including their computing power, storage capacity, display capability and network connectivity. The Grid provides great possibilities for addressing some of these limitations to facilitate mobile learning. For instance using Grid technologies, a mobile learning device could offload processing tasks to a more powerful nearby device. Similarly this resource sharing capability of the Grid could be very useful for sharing display or storage devices.

We then describe our experiences with implementing a mobile eLearning Grid client using current Grid technologies. We argue that although Grid computing can help address many inherent issues in mobile eLearning, the technology is still built around the problems of distributed computation rather than the loosely coupled virtual organizations needed for mobile eLearning, and we look toward the next generation of Grid technology in order to assess whether it will fill this gap.

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