

## Peer-to-Peer Ecommerce Systems and Applications

Chairs: Karl Aberer, Jean-Henry Morin and Aris Ouksel

Peer-to-Peer computing is characterized by an increasing decentralization and autonomy of components thus leading to a new paradigm of distributed computing requiring new approaches and patterns. It represents a natural evolution or mapping of the Internet protocols also characterized by decentralization and autonomy of its participating nodes. While the industry is hard at work trying to impose tomorrow's "legacy architectures" by means of so called *Web Services*, Peer-to-Peer computing goes one step further and postulates that although there will always be a need for centralization in the client-server sense, the general model that should prevail is one where roles are not clear cut but dynamic. Actors or Peers appear and disappear dynamically thus pushing back and forth the edges of the network, potentially endorsing all possible roles at any point in time. In this context, hard-wired centralized services are only one among many interaction patterns that can be achieved in Peer-to-Peer architectures capturing interesting features of a real world eco-system.

Similarly, the *Semantic Web* initiative by the W3C also builds on this departure from centralized architectures and places the debate at the level of ontologies and semantics. We may expect web services to occur and interoperate in Peer-to-Peer architectures. This will require formal descriptions of the semantics of the services they provide, as well as the use of Peer-to-Peer paradigms in order to establish agreements on commonly used ontologies.

In this context, the paradigm shift appears to lie in the convergence of several technologies such as Peer-to-Peer frameworks, Mobile Agents, Digital Rights Management / Digital Policy Management, trust computing, cognitive or knowledge agents and ontologies. These technologies provide in our opinion true opportunities to design novel IT architectures to support new organizational forms and flexible ways of conducting and reengineering businesses.

The minitrack presents five papers covering several key issues in these areas:

The first paper "*Java Mobile Agents on Project JXTA Peer-to-Peer Platform*" by Chen and Yeager addresses the application of mobile agents to e-commerce on Peer-to-Peer architectures. The paper presents an implementation on JXTA and proposes a simple protocol for mobile agent transport.

The second paper "*Project JXTA-C: Enabling a Web of Things*" by Traversat, Abdelaziz, Doolin, Duigou, Hugly and Pouyoul presents the implementation of the JXTA protocol suite in the "C" language targeted towards inclusion at the system level for small devices and high-end servers.

The third paper "*Peer-to-Peer Networks for Virtual Home Environments*" by Loeser, Mueller, Berger and Eikerling presents an application of Peer-to-Peer technology for home networks. The paper describes the integration of JXTA with the Open Services Gateway Initiative (OSGi) framework and presents a home video storage network example.

The fourth paper "*A Contract and Rights Management Framework Design for Interacting Brokers*" by Guth, Simon and Zdun addresses a key interoperability issue of digital rights management systems. The paper describes a contract and rights framework for Peer-to-Peer environments.

Finally, the fifth paper "*A Model for a Better Understanding of the Digital Distribution of Music in a Peer-to-Peer Environment*" by Rupp and Estier proposes a model to compare the actors and value chains of the music distribution industry with respect to Peer-to-Peer technologies. The model is then applied to four examples in the field to illustrate the issue.

We hope this minitrack will provide the basis for productive discussions on many aspects of Peer-to-Peer computing and related issues.

We also take this opportunity to thank all the authors for their submissions and all the reviewers for their valuable and professional work.