

## Mini Track: 'Peer-to-Peer Ecommerce Systems and Applications'

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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 tomorrows "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.

This years minitrack presents six papers in two sessions covering several key issues in these areas:

The first session focuses on Peer-to-Peer models and evaluations while the second session addresses implementation and practices issues.

The first paper "Towards Peer-To-Peer Double Auctioning" by Despotovic, Usunier and Aberer explore the possibility of implementing a double auctioning mechanism in a P2P architecture, preserving autonomy of peers and avoiding the use of a central auctioneer. A mechanism satisfying these architectural constraints with good economic properties is proposed and analyzed.

The second paper "Topology, Search, and Fault Tolerance in Unstructured P2P Networks" by Samant and Bhattacharyya investigate the impact of node failures and attacks on accessibility for random and scale-free P2P networks under varying hop-count, connectivity, and replication parameters.

The third paper "Modifying the Overlay Network of Freenet-style Peer-to-Peer Systems after Successful Request Queries" by Mache, Ely, Gilbert, Gimba, Lopez and Wilkinson addresses a fundamental weakness of Freenet-style systems, which was not recognized in earlier analyses, since query and insertion were presumed to be equally probable. They suggest a modification of the query strategy to overcome this problem.

The first paper of the second session "Hot-Swapping Communication Models in P2P Networks" by Oriol and Pawlak addresses an interesting issue in dynamic reconfiguration of communication media in P2P environments through a model and its implementation.

The second paper "FolkMusic: A mobile peer-to-peer entertainment system" by Wiberg report on an interesting application of information technology in an edutainment context. Their mobile p2p entertainment system allows users to share music with bypassers in a location-dependent manner.

Finally, the sixth paper "The NEMO P2P Service Orchestration Framework" by Bradley and Maher presents a policy managed, peer-to-peer, service orchestration framework providing abstractions for location, service description, and mutual trust verification.

We hope this years edition of the 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.