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Special session 2

**Decentralized computing markets using Ethereum / Blockchain Technologies (operating in trustless environment, Saas/PaaS/IaaS, Autonomous reputation systems, Microtransactions, Blockchain technologies, Cryptocurrencies)**

We would like to invite you to the special session that will cover decentralized ecosystems including hardware and software that may substitute existing technologies such as cloud computing or common grid computing.

The functional qualities of interoperability, performance, scalability and reliability are important for emerging technologies that will drive the software system infrastructures of tomorrow. The emerging trend of distributed computing presents both challenges and opportunities. However, new computing techniques require underlying design principles, to ensure that security and reliability can be maintained in a scalable manner. The session will consider the distributed platforms, as well as the applications that will drive future computations. Furthermore, the session will examine how the distributed computing technologies complement new developments in the area of the Middleware, Internet of Things, as well as developments arising from Cloud-enabled infrastructures.

This special session includes participation in workshop with Golem Factory (<https://golem.network/>) - the ongoing open project which is the new way the future Internet will work. Golem is the first truly decentralized supercomputer, creating a global market for computing power. In contrast to cloud and popular grid computing, this disruptive technology connects computers into a peer-to-peer network, enabling both application owners and individual users to share their resources, while preventing freeloading. Golem combines decentralized computation power with flexible tools allowing developers to monetize their software and at the same time provides a cheap way of performing computations such as CGI rendering, demanding intelligent tasks such as machine learning or data mining, as well as other complex calculations for scientific research, making those accessible to everyone. A built-in feature set is a dedicated Ethereum-based transaction system which enables direct payments. Golem is set to become a key building block for future Internet service providers and software development. As an open project, it allows any interested party to create and deploy software to the Golem network as well as customize the payment mechanism.

**In this session we are mostly interested in papers that may help in answering the following open questions:**

1. How to construct a reliable reputation system without a supervisor?
2. How to verify results delivered by untrusted nodes?
3. How to achieve deterministic computation for largest possible subset of algorithms on modern hardware?
4. Is it possible to leave sandbox (docker) and get access to the host system. How to prevent such issues?
5. How to manage tasks in P2P systems efficiently and accordingly to the specified rules like node reputation?
6. How to build reliable and safe file management system for P2P network?
7. How to use MapReduce systems in P2P networks?
8. How to structure a network of competing peers in a way that prevents mutual censorship?