Panel Discussion

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Next-Generation Cloud Computing: Requirements, Challenges, and Visions

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Abstract
While cloud computing is now embraced by many organizations, its increased use in practice has led to the identification of a number of limitations. For example, security and privacy are still major roadblocks for cloud adoption, elasticity of cloud computing is not as instantaneous in practice as hyped by marketing, mobility of consumers is not yet addressed completely, etc. While some of these issues will be soon addressed by innovations from academic or industrial research, there are also important challenges that might require fundamental improvements in cloud computing. In particular, a number of consumer applications require security, dependability, or quality of service (QoS) as fundamental features that are built in from the start, instead of being “add-ons”. On the other hand, the next-generation Internet communication architecture (e.g., from projects on the Internet of Things, the Future Internet, etc.) will also influence cloud computing in the future. These and other challenges and opportunities will soon lead to a new generation of cloud computing systems. This EDOC 2012 discussion session will brainstorm possible features of next-generation cloud computing systems from two-directions: a) by identifying requirements and challenges for overcoming fundamental problems of the current cloud computing systems, b) by pointing out possible visionary architectures of next-generation systems. All EDOC 2012 participants are encouraged to contribute to this discussion. At the beginning of the session, the moderator will give a short introductory presentation to kick-start the discussion, but other participants can also deliver short introductory statements (previously approved by the moderator). Then, an open-ended discussion will explore in more depth some of the key concerns and most provoking ideas raised by the participants. At the conclusion, some of the “to do” items for research towards next-generation cloud computing will be summarized.

Keywords: cloud computing, future Internet computing, future Internet, security, dependability, quality of service, mobility.