

# When Clouds Start Socializing: The Sky Model

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## ABSTRACT

*This paper discusses the possible blend between social computing and cloud computing. The result of this blend is the Sky model in which several clouds engaged in different types of social relations like collaboration and competition. Challenges and opportunities associated with the Sky model are reported in this work.*

*Keywords: Cloud Computing, Collaboration, Competition, Sky Model, Social Computing, Social Relations*

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Cloud computing is hailed for its role in adjusting the traditional computing model in response to the widespread availability and use of Internet technologies. In this computing model, organizations are fully in charge of deploying, managing, and maintaining their hardware and software enterprise applications as well as data resources. While the adoption of such a computing model has always been a burden on IT departments/people, cloud computing shifts this burden to cloud providers whose primary mission is to look after enterprise applications and data resources deployment, management, and maintenance so that organizations can now focus on what they are good at. By posing the clouds as a form of utility services, a rapid and low-cost access to a shared pool of virtualized and configurable computation and storage re-

sources is offered to organizations. This helps organizations diversify their computation and data storage strategies while remaining focused on their core competencies (Armbrust et al., 2010).

Cloud computing is usually shaped into three models: Infrastructure as a Service (IaaS), Platform as a Service (PaaS), and Software as a Service (SaaS). IaaS enables on-demand access to hardware, computation, and storage resources that can be rapidly provisioned and adjusted on a pay-per-use basis. PaaS provides middleware services (e.g., a DBMS or a .NET framework) and resources for application development, deployment, monitoring, and hosting in the cloud. Finally SaaS lets consumers, either organizations or end-users, access multi-tenant software applications (e.g., the

CRM of [www.salesforce.com](http://www.salesforce.com)) with no control over the computation infrastructure upon which these applications operate. When materialized physically cloud computing is referred to as either private, public, or hybrid (Armbrust et al., 2010). Each caters for specific needs and addresses specific requirements of today's organizations and end-users. Briefly, private clouds exist within an organization's boundaries when security, among other concerns, is of high importance. Public clouds deliver an open computation and storage services for the benefit of multiple organizations or the general public. The hybrid is basically a mix of private and public.

### **SOCIALIZING ON THE WEB: THE CLASSIC VIEW**

Social computing is defined as the computational facilitation of social studies and human social dynamics as well as the design and use of information and communication technologies that consider social context (Wang, 2007). Social computing is, also, about collective actions, content sharing, and information dissemination in general. The recent interest in social computing has arisen due to the massive adoption of social Web applications like Facebook, MySpace, LinkedIn and Twitter. These applications offer a glimpse of how people nowadays manage their own Web-based social accounts. Social networking brings a new dimension to the Web by offering novel communication channels between people and communities (Vossen, 2009). Since social Web applications are built to encourage communication between people, they typically emphasize some combination of the following social attributes (Connolly, 2011): reputation (what do people think you stand for?), relationships (who are you connected with and who do you trust?), groups (how do you organize your connections?), conversations (what do you discuss with others?), and sharing (what content do you make available for others to interact with?). A study by KY3.com found that most people who use social Web applications are young,

and that their use of these applications is not a waste of time (Russell, 2008). Contrarily these applications help young, especially teenagers develop their knowledge, technical skills, share ideas and interest, and create a massive social communication network with different people across different parts of the world.

### **BLENDING SOCIAL COMPUTING WITH OTHER DISCIPLINES: AN EXTENDED VIEW**

On multiple occasions, we discussed the opportunities (Maamar et al., 2011a; Maamar et al., 2011b) that rise from blending social computing with other disciplines such as service-oriented computing. As stated earlier social computing is all about collective actions, content sharing, and information dissemination, while service-oriented computing is all about service offer and request, loose coupling, and cross-organization flow. Blending both disciplines renders social Web services "know" with whom they worked in the past and with whom they would like to work in the future. These two elements constitute the "memory" of a social Web service and show the collective action of a group of social Web services ready to share respective experiences when developing complex value-added services. Social Web services know about themselves, users, and peers, take into account past user interactions, delegate their invocations when necessary, and instantaneously and voluntarily cooperate with each other (Maamar et al., 2011b).

Another blend example reported in the literature refers to social computing with cloud computing, a.k.a, social cloud. Some initiatives look into this blend from the perspective of deploying social applications on the cloud. In Chard et al. (2010), Chard and his colleagues examine how to let friends who are part of a social network such as Facebook share computing resources (e.g., virtual storage) using virtualization technologies though compensation of use is optional. Pezzi extends this view to a wider economic ecosystem by making

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