Chapter 6

Service Delivery Resource Management Using a Socially Enhanced Resource Model

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ABSTRACT

Executing knowledge-intensive business processes often requires knowledge workers to collaborate effectively on complex activities. Social network analysis is increasingly being applied to understand the underlying interaction patterns between teams and foster meaningful collaboration. The social positions of workers in such networks can be identified and used to assist effective collaboration. Resource synergies are another important factor considered during team formulation. In this chapter, we present a novel resource model that incorporates the concept of communities, social positions, and resource synergies together. We demonstrate our model and approach through real industry processes - IT incident management and software development projects. This resource model can be used to accelerate the collaboration between work groups by dedicating a collaborative unit to each incoming incident during incident resolution. For software development projects, this extended resource model can be used to formulate a synergetic team to handle tasks with a complex dependency structure.

INTRODUCTION

Social networking has recently become a powerful paradigm in enabling people to work together in an organized environment such as enterprises as well as unorganized environments on the Web. Participa-
tion in a business process, too, is “social” in nature (Khan 2009). Particularly, knowledge workers in enterprises interact with each other frequently, share ideas, and build knowledge iteratively to execute complex activities in knowledge-intensive business processes successfully. For conducting such business processes efficiently, it is critical to provide knowledge workers with an appropriate social supporting structure for effective task execution. For example, in the enterprise IT Service Management (ITSM) area, IT support teams troubleshoot IT issues related to software applications and/or infrastructure that are formally referred to as IT incidents or also known as “tickets”. Due to the complexity of IT environments in modern enterprise computing, an incident regarding enterprise business applications (e.g., SAP), often requires on-demand collaboration among many other support teams in different domains, for example, servers, middleware, storage drives, or operation system teams. In addition, IT management in large Fortune 500-type companies are often provided by IT service management firms through various forms of out-sourcing contracts. This fact tends to add another dimension of complexity to the execution of the process because more service delivery resources from multiple organizations are involved in it. Availability of social structure that facilitates the interactions can be important to improve the productivity and efficiency in such environments.

There is a strong call for injecting social computing technologies into the traditional business process management (BPM) framework for a higher level of flexibility and efficiency. Social Compute Unit (SCU) is a concept proposed recently (Dustdar & Bhattacharya, 2011; Sengupta et al., 2012). An SCU is dynamically and virtually formed as a loosely coupled team of skilled (human) resources to execute a specific task for a limited time. Sengupta et al. (2012) provided an example in ITSM where an SCU is created based on IT component dependencies involved in an incident. For instance, in the SAP application incident mentioned above, an SCU can be formed with resources from servers, middleware, storage drives, and operation system teams. While such predefined dependencies of a task helps identify different types of collaborating resources to a degree, as a starter, an even deeper analysis requires considering social positions of individual resources (e.g., contributor, coordinator, leader, follower, representative, gatekeeper and liaison), which are a critical factor in successful collaboration. Also, in most tasks involved with complex decision-making, such dependencies cannot be taken for granted, but need to be explored as part of dynamic task execution. Aalst and Song (2004) discovered a number of interaction patterns from logs of task hand-over in business processes. Also, a number of techniques have been incorporated into BPM solutions to utilize the power of social networking. For example, the upcoming notion of Social BPM (Brambilla, et al., 2012; Dengler et al., 2010; Erol et al., 2010; Johannesson et al., 2009; Koschmider et al., 2009) discusses the need of social process design and social support during process runtime as two primary patterns. However, previous work in Social BPM in general ignores another important issue about how to leverage social networks in resource assignment and task execution for better process performance. This issue becomes especially critical for the IT service delivery domain where a large number of knowledge workers exist and their close collaboration is always required for delivering high quality IT services to clients. Following this trend, in this chapter, we propose a new methodology to study social networks formed during process execution, identify novel social positions in such networks, and utilize the identified social positions to dynamically form SCUs for executing tasks in knowledge-intensive service delivery processes. While understanding social ties of resources formed during task collaboration, we also investigate other factors that can further strengthen the social affinity, such as resource collocation, overlap of resource organization hierarchy, sharing of related tasks, training etc. We integrate all these factors into a resource synergy model that formally defines the affinities between resources. This synergy model can also be used to form SCUs for collaborative tasks.