ASME Evaluation on Grid Mobile E-Commerce Process

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ABSTRACT

With the development of E-commerce, more scholars have paid attention to research on Mobile E-commerce and mostly focus on the optimization and evaluation of existing process. This paper researches the evaluation of Mobile E-commerce process with a method called ASME. Based on combing and analyzing current mobile business process and utilizing the grid management theory, mobile business process based on grid are constructed. Firstly, the existing process, namely Non-grid Mobile E-commerce, and the Grid Mobile E-commerce process are ordered. Secondly, the evaluation system with ASME is formed. Thirdly, the benefits of the Grid Mobile E-commerce process are presented. This paper provides a new way to evaluate Mobile E-commerce.

Keywords: ASME, Business Process Reengineering (BPR), Evaluation, Grid Management, Mobile E-commerce Process

INTRODUCTION

Recently, Mobile E-commerce receives more and more attention with its characteristics of flexibility and convenience. In developed countries, Mobile E-commerce has penetrated into every aspect of life, while China is developing it rapidly. In the research of mobile business theory and method, Mobile E-commerce Process is the backbone throughout. With further research, studies on Mobile E-commerce have no longer stay in the cognitive level, and concentrates on service and process optimization.

The research of Mobile E-commerce is still dispersed at this stage, without an overall research and modeling approach. The lack of theory will delay the development process of Mobile E-commerce processes and increase the cost of development. Based on recent research, a process reengineering study based on grid management (Chi, 2008) provides a new solution to optimize the Mobile E-commerce process. And the mobile grid technology (Du, 2010) makes applying grid management into Mobile E-commerce process possible, which will be more safe, powerful and convenient. Grid management is an effective method to solve the problems of resource sharing, collaborative work in the whole system. As it has a quantitative mathematical description, so the logistics flow, information flow and operation flow in the grid management system can be quantitatively calculated, achieving a transmission of qualitative analysis to quantitative analysis.

Evaluation of the process is an important and necessary way to prove whether the grid
management promotes the process. This paper will evaluate the Traditional Mobile E-commerce process and Grid Mobile E-commerce process on a practical case with the method of ASME (Ren, 2005) evaluation. ASME evaluation is based on quantitative analysis and more convincing. It also provides a new method for process evaluation.

In this paper, with mobile business process as the research object and grid management as the research theory, combing the method of ASME evaluation, conduct a research of mobile business process based on grid management followed by the research ideas. Firstly, analyze the existing mobile business process, finding the problems. Then construct a grid-based mobile business process in the support of grid management theory. Finally, conduct a simulation comparison between grid-based and non-grid based mobile business process.

LITERATURE REVIEW

Mobile E-commerce Process

Although more scholars are researching mobile E-commerce, there are few scholars systematically constructing the whole process of mobile E-commerce. They only did some researches on node flows, such as the payment process (Yang & Zhang, 2009), the logistics process (Liu & Jiao, 2009) and the authentication process (Wang & Zhang, 2009), and the analysis of process is still in qualitative stage. Therefore, setting up, optimizing and quantitative evaluating the Mobile E-commerce process from the user’s angle to improve the service can be the core of the study, of which targets are to improve the resource utilization of mobile network and the management efficiency of mobile E-commerce.

Grid and Grid Management

Grid Technology

The “grid” (Foster, Kesselman, & Tuecke, 2001) is a new technique building on the Internet, which blends high speed Internet, high performance computers, large databases, sensors, and remote equipments as a whole, providing more resources, function and interactivity for technicians and ordinary people. Grid technologies form a super computer that integrates all resources from different physical locations in Internet, realizing the widely sharing of information and resources (Chang & Si, 2011).

Mobile grid is the extending of traditional grid in the wireless circumstance. It supports mobile users and resources seamlessly, transparently, safely and effectively. The mobile grid integrates mobile devices, consisting of a resources sharing network with mobile notes.

Grid Management

Grid management emerges from grid computing that can realize information integration, synergic operation and information sharing (Shen, 2006). This idea divides objects into grid units according to certain principles, and makes the units communicate with each other effectively, sharing the resources apparently with the help of IT and coordinate mechanism to improve the management efficiency.

Grid management has several features, including: (1) slices combining with pieces; (2) business process reengineering (BPR); (3) supreme customers; (4) resources sharing; and (5) systematic supervision and administration (Zheng, Xu, & Wang, 2005).

The process of grid management can be abstracted as follows (Yuan, Wang, & Ma, 2007):

1. **Business Acceptance:** Accept all demand applications from clients at the same platform, and verify the demands.
2. **Business Dispatch:** Recognize and subdivide the type of demands, dispatching tasks to the corresponding functional department.
3. **Business Conduction:** Functional departments accept tasks, dealing their tasks according to the specific requirements.
4. **Service Delivery:** Task execution information is fed back to the users or acceptance
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