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Abstract

PERFORMANCE ANALYSIS FOR TRAFFIC INTENSIVE WEB-BASED WORKFLOW APPLICATIONS

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A business process [28] consists of a group of logically related tasks that use the resources to provide defined results in support of the objectives of an organization. Web-based business processes designed for travel industry and government agencies are considered as traffic intensive applications since number of users can spike within a short time (e.g. political unrest, extreme weather condition). In addition, every hit does not necessarily lead to a successful completion of a transaction since users can navigate away to other web sites during the browsing. Applications under this category are likely to encounter flash crowd situation in which the server can no longer handle overwhelming service requests. To alleviate this problem, business process engineers usually analyze audit trail data recorded from the application server and reengineer their processes to withstand such situations. However, such analysis only reveals some of the performance indicators which can only be observed from the internal perspective of the application server. In this research, we propose a novel approach for identifying key performance indicators of traffic intensive web applications by integrating analysis results from audit trail data of an application server with analysis results from a web server log analyzer and stress testing tool. Web server log analyzers are mainly used to analyze the transactions between client computers and the web server whereas stress testing tools are usually used to estimate the workload limit of a web server. The analysis result from these programs provides an internal as well as an external view of the performance. It also allows process engineers to exactly pinpoint the potential bottlenecks in the application.