On Delay Adjustment for Dynamic Load Balancing in Distributed Virtual Environments

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**ABSTRACT**

Distributed virtual environments (DVEs) are becoming very popular in recent years, due to the rapid growing of applications, such as massive multiplayer online games (MMOGs). As the number of concurrent users increases, scalability becomes one of the major challenges in designing an interactive DVE system. One solution to address this scalability problem is to adopt a multi-server architecture. While some methods focus on the quality of partitioning the load among the servers, others focus on the efficiency of the partitioning process itself. However, all these methods neglect the effect of network delay among the servers on the accuracy of the load balancing solutions. As we show in this paper, the change in the load of the servers due to network delay would affect the performance of the load balancing algorithm. In this work, we conduct a formal analysis of this problem and discuss two efficient delay adjustment schemes to address the problem. Our experimental results show that our proposed schemes can significantly improve the performance of the load balancing algorithm with neglectable computation overhead.

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Research interest: Virtual Reality and Distributed Computing

**All are welcome!**

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