Abstract

Distributed interactive applications (DIA) are becoming popular in the recent years. Examples of DIAs include shared workspaces, networked games, distributed whiteboards, distributed architectural design, virtual classrooms, telemedicine and simulation. The essential aspect of DIAs is that sufficient information is communicated between participants so that the state of the application remains consistent for all participants at all times. Consistent refers to the state of all the systems. If nodes have inaccurate information about the state of other nodes, due to communication delays between nodes, this could result in unnecessary periodic exchange of loads among them, due to which, certain nodes may become idle while loads are in transit, this would result in the prolonged total completion time of a load. Hence load balancing becomes more challenging in interactive applications as load variation is very large and the load on each server may change continuously over time, when the server takes the load migration decision, the load status collected from other servers may not be valid. This will affect the performance, of the load balancing algorithms. All the existing methods neglect the effect of network delay among the servers on the load balancing solutions. In this paper, due to the change in the load of the server, network delay would affect the performance of the load balancing algorithm. A new priority packet scheduling scheme is proposed in which load requesting Interactive application packets are placed in the highest priority queue and the processing of packets at
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other queue. Simulation results show that the proposed buffered priority packet scheduling scheme outperforms AODV with single queue for the load requesting messages of Interactive application in term of end-to-end data transmission delay.

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Index Terms

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Keywords

Buffer Delay Distributed system Load balancing Multilevel Queue Packet scheduling Priority Scheduling