Title :   Routing Simulation for Network Load Balancing

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ABSTRACT

The connection of the Client-Server Model often faces limitations in terms of communication efficiency when supporting many users. From the above problems, this independent study aims to study and analysis the performance differences between communication methods using a client-server model and a hybrid model that communicates through a client agent that distributes information to group members.

The simulation system is developed with the NS-3 network simulator using the C++ and Python programming languages. The simulation system is divided into simulation sections: creating a network simulation system with simulation of servers and clients both in the same and different local networks, simulating network communication using TCP and UDP communication specifications, selecting efficient members to send and receive data, and distributing work to desired clients through agents in the group.

The test results collect communication data and the results show the different performance of the hybrid model and the client-server model. It is found that the average delay from data generation to data transmission is less than 0.11 ms, the average delay from data generation to result reception is more than 0.62 ms, the number of results received within 1 second is less than 420 results, and the average size of the job sent by the server is reduced by 24.34 bytes.

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