

Analisis skalabilitas dan keandalan connection oriented bandwidth scheduler pada jaringan Peer- to- peer dengan peersim simulator = Scalability and reliability analysis of connection oriented bandwidth scheduler in Peer- to- peer network with peersim simulator

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Abstrak

Pada sebuah jaringan, jumlah server hampir pasti lebih kecil dari jumlah customer yang mengaksesnya, sehingga server terkadang kesulitan untuk memenuhi semua kebutuhan customer. Hal ini dapat menyebabkan terjadinya pelanggaran pada Service Level Agreement (SLA). Penelitian sebelumnya menunjukkan bahwa connection-oriented bandwidth scheduler merupakan bandwidth scheduler yang paling efektif. Pengujian dilakukan untuk mengetahui skalabilitas dan keandalan dari connection-oriented bandwidth scheduler menggunakan Peersim Simulator.

Hasil simulasi menunjukkan bahwa connection-oriented bandwidth scheduler memiliki efisiensi yang tinggi. Saat keadaan default, utilisasi link hampir mencapai 90,00%. Sementara itu kenaikan level parallel degree ternyata memiliki pengaruh yang linier terhadap kenaikan utilisasi link. Semakin tinggi level parallel degree, semakin besar pula utilisasi link. Namun kenaikan tertinggi terjadi saat parallel degree level 2, dengan kenaikan 5,12% dibandingkan dengan parallel degree level 1. Hasil analisis juga menunjukkan bahwa pada saat simulasi, sistem yang menerapkan connection-oriented bandwidth scheduler mampu menangani jaringan dengan perbandingan server dan customer sebesar 1: 89.

In a network, the number of servers is almost certainly less than the number of customers who access it, so sometimes, it might be difficult to meet all the customer's needs. This can lead to violations of the Service Level Agreement (SLA). Previous studies showed that one of the most effective bandwidth scheduler is connection-oriented bandwidth scheduler. Testing was conducted to determine the scalability and reliability of the connection-oriented bandwidth scheduler using Peersim Simulator.

Simulation results show that connection-oriented bandwidth scheduler has a high effectiveness. During the default state, the utility link almost reaches 90.00%. Meanwhile the increase in the level of parallel degree proved to have a linear influence on the increase in the utility link. However, the highest increase occurred when the level of parallel degree is set to 2, with an increase of 5.12% in link utility. Analysis of the simulation results also shows that during the simulation, the system using connection-oriented bandwidth scheduler is able to handle a network with a server and customer ratio of 1: 89.