Performance evaluation of threshold-based control mechanism for Vegas TCP in heterogeneous cloud networks

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Abstract

Many studies have shown that Vegas TCP has a better throughput and stability than Reno TCP in homogeneous networks with a single TCP flavour, but performs less well in heterogeneous networks in which two-TCP flavours coexist. The progressive behaviour of Reno TCP and the conservative behaviour of Vegas TCP cause a bias when they are used simultaneously, and thus, Vegas TCP fails to obtain a fair share of the bandwidth. This paper examines the origins of this bias and proposes a threshold-based congestion control mechanism designed to alleviate the resulting unfairness problem. The simulation results show that the proposed scheme achieves a higher throughput than the conventional Vegas TCP scheme and preserves the stability of the conventional scheme when used in heterogeneous cloud networks.