Bandwidth Sensitive Co-allocation Scheme for Parallel Downloading in Data Grid

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Abstract

The large sized data sets are replicated in more than one site for the better availability to the nodes in a grid. Downloading the dataset from these replicated locations have practical difficulties, due to network traffic, congestion, frequent change-in performance of the servers, etc. In order to speed up the download, complex server selection techniques, network and server loads are used. However, consistent performance is not guaranteed due to the shared nature of network links of the load on them, which can vary unpredictably. In this paper, we present a bandwidth sensitive co-allocation scheme for parallel downloading in grid economics. Objective of the proposed technique aims to service grid applications efficiently and economically in data grids. With the consideration of cost factor, we present a novel mechanism for server selection, dynamic file decomposition and co-allocation. Under considerations in costs, our mechanism for selections of servers with various techniques combined is able to significantly attenuate economic costs. We compared our scheme with the existing schemes and the preliminary results show notable improvement in overall completion time of data transfer.

Keyword：Grid scheduling, data grid, parallel downloading